INSTRUCTION MANUAL
MANUEL D'INSTRUCTIONS
BETRIEBSANLEITUNG
MANUALE D'ISTRUZIONI
MANUAL DE INSTRUÇÕES
MANUAL DE FUNCIONAMIENTO

IS VisiCam Image Analyser

Image acquisition, managing and processing Software

included with:
VisiCam 1.3: 630-1030
VisiCam 3.0: 630-1031
VisiCam 5.0: 630-1032
VisiCam 10.0: 630-1484
VisiCam 3 PLUS: 630-2737
VisiCam 5 PLUS: 630-2738
VisiCam 16 PLUS: 630- 2919

Revision 1.1

Issued 22.03.2017

Legal Address of Manufacturer

Europe

VWR International BVBA

Researchpark Haasrode 2020

Geldenaaksebaan 464

B-3001 Leuven

+ 32 16 385011

http://www.vwr.com

Package Contents

Description	ECN#	Qty
CD-ROM with IS VisiCam Image Analyser Software and drivers		1

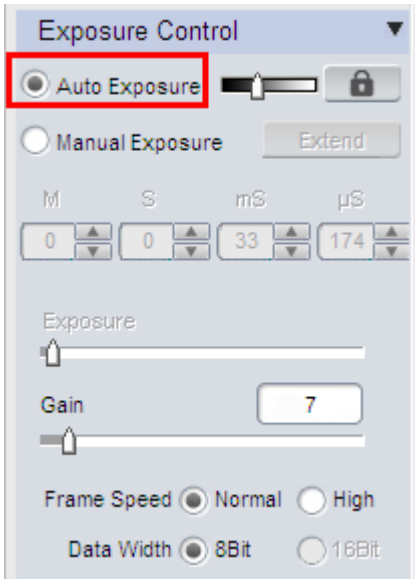
Recommended System

- IBM PC compatible: Windows 7 / 8 / 10 (32&64 bit)
- RAM: 2GB**,** HDD: at least 10GB
- At least USB 2.0 interface
- CD-ROM drive (to install Software)

IS VisiCam software Parameter Settings

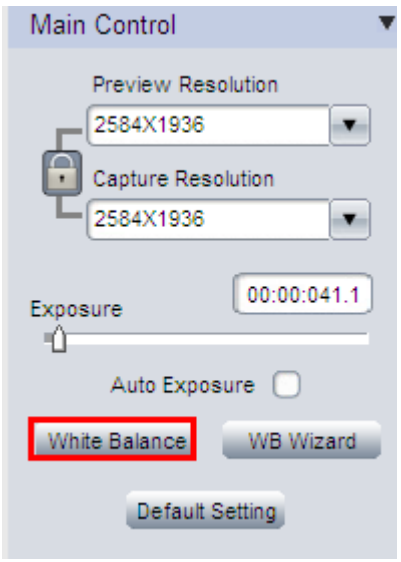
1. Set **Auto Exposure**. Observe the preview and adjust the microscope (or lens) to make image in focus.
Normally Auto Exposure function can get proper brightness preview. If preview is still dark, manually set **Gain** to the middle of the slider.

When get preview in focus, set **Gain** back to the initial value, change to **Manual Exposure** mode and extend the exposure time manually until get proper brightness images.



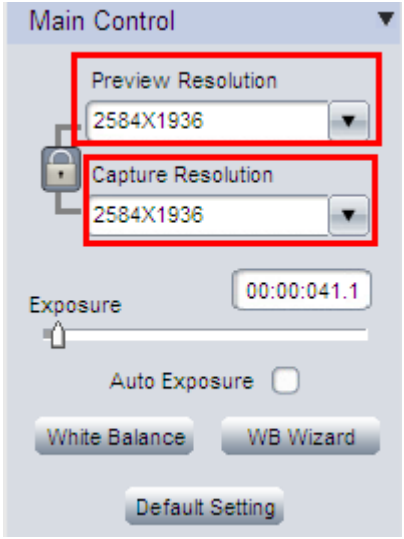
2. Click **White Balance** button to correct image color.

To get better white balance result, please move the sample to the blank area and then hit **White Balance** button, then move back the sample. Or also can click **WB Wizard** and follow the steps to finish the white balance.

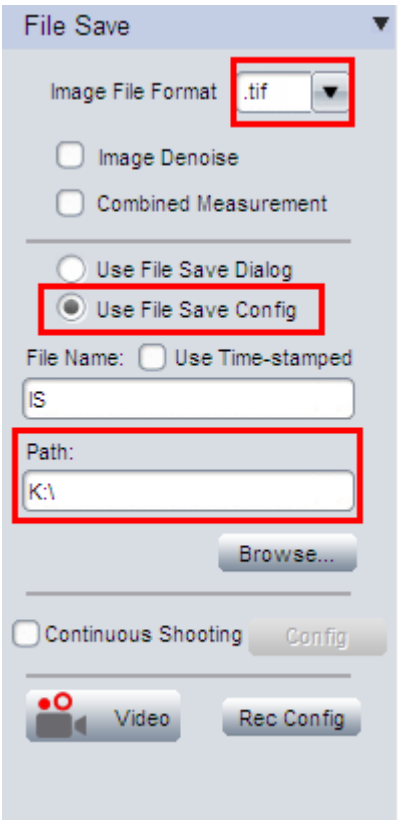


Change resolution to preview and capture different resolution images.

Click the Lock tag  to lock/unlock the preview and capture resolution. Unlocking it allows to set different preview and capture resolution (Usually use for low resolution preview, high resolution for capture).

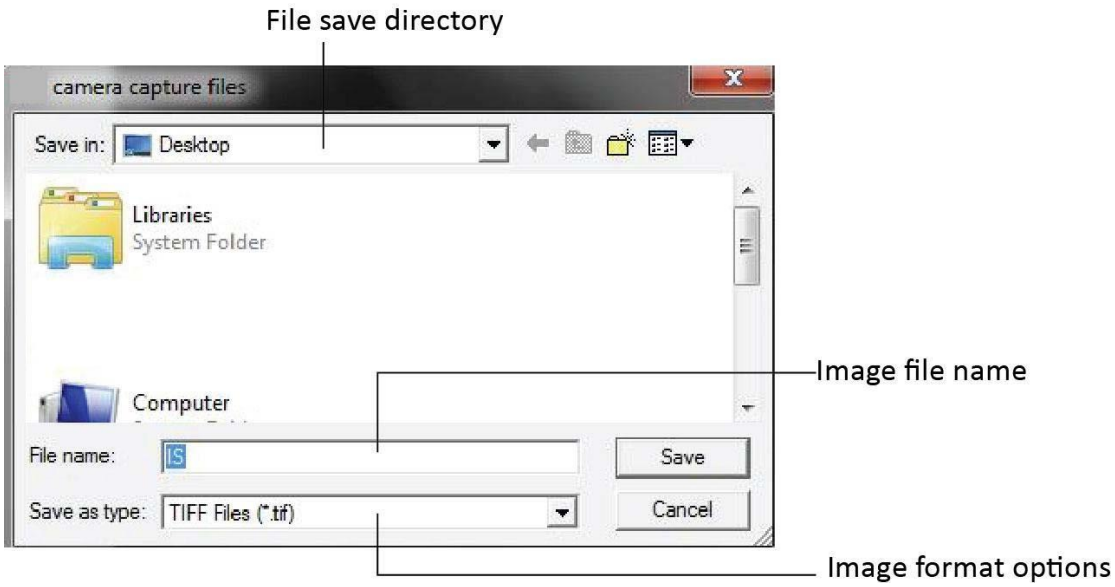


3. Go to **File Save** tab to set image save format, directory and file name.



a. Select **Use File Save Config** to pre-set the capture image format, save directory and file name.

b. Select **Use File Save Dialog** to use pop up dialog to set capture image file name, save directory and format.

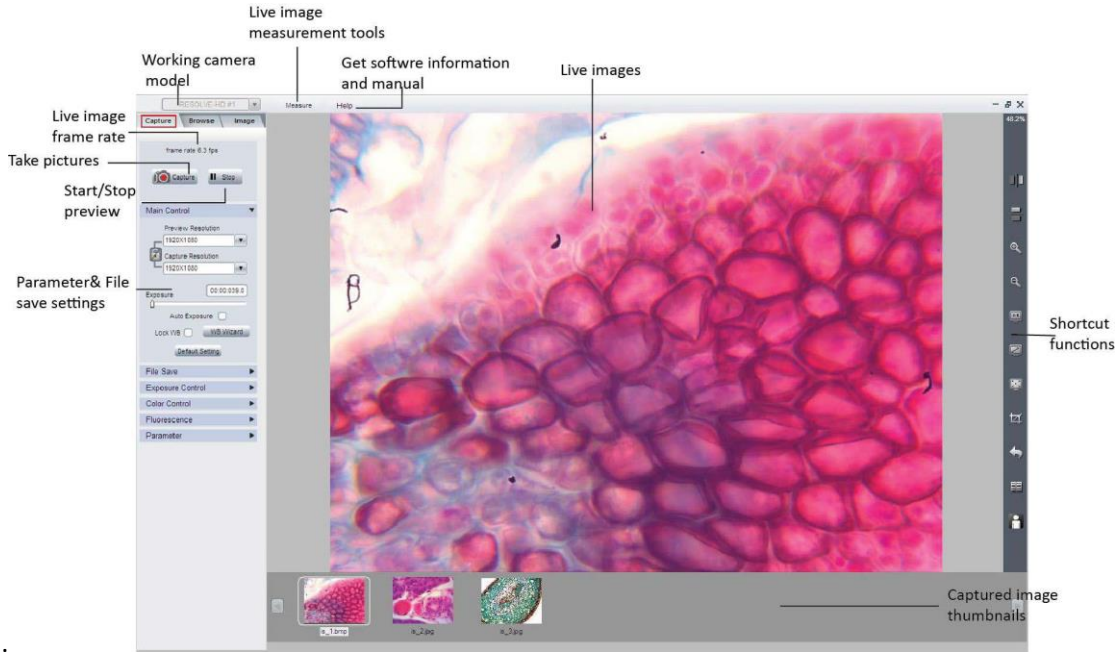


Every time click Capture button 

, the file save dialog will pop up every time to ask to set file name, save directory and image format.

Chapter 2: Image Acquisition

Adjust camera parameter settings to get proper live image; live image measurement and save still pictures and videos.



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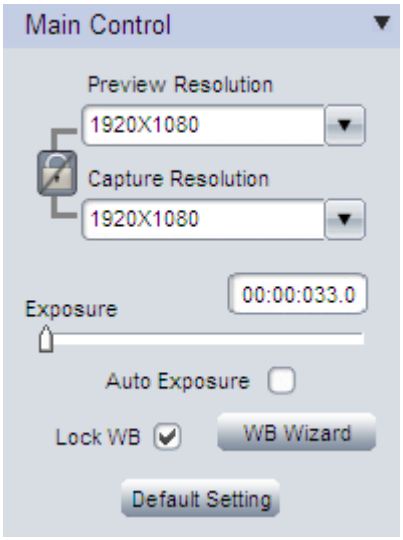
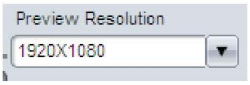
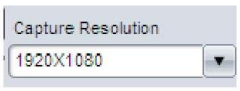
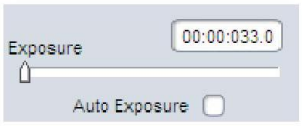
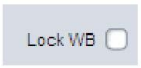
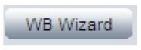
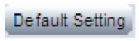
Basic Control

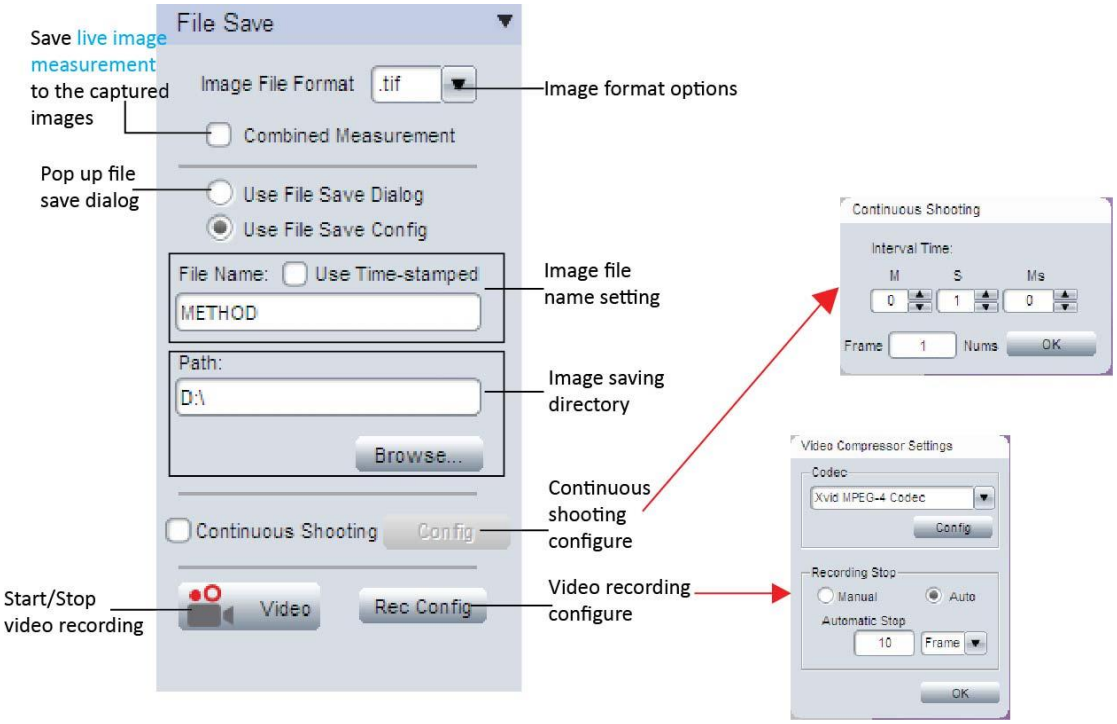


	Live image resolution	Select resolution for live image
	Captured image resolution	Select resolution for capturing
	Exposure Time	Change Exposure time to adjust image brightness. Auto Exposure mode will adjust proper brightness image automatically.
	Lock White Balance	Unchecked: Auto White Balance mode. Apply white balance calculation for every frame image. Checked: Lock the White Balance calculation result.
	White Balance Wizard	Wizard for getting better White Balance result.
	Default settings	Restore all the parameters to default value

After setting the brightness live image, it is recommended to apply White Balance to correct the live image color. To get better white balance effects, please follow the following steps:

1. Move the sample to the blank area;
2. Uncheck [Lock WB];
3. When see image in correct color, check [Lock WB] check box;
4. Move the sample back.

Taking Still Images and Videos

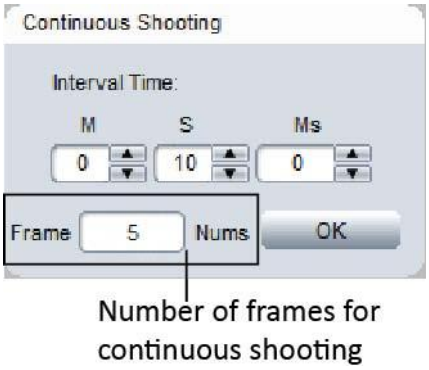


- In the [File format] dropdown menu , 4 file formats are available: JPEG, BMP, TIFF and RAW.

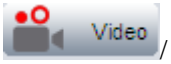
Raw image file contains minimally processed data from the camera. It needs to be read in some special software for example Photoshop, ImagJ etc. If it is the color camera raw file, color information only can be seen after decoding the Bayer matrix

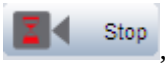
Continuous Shooting

- Click [Continuous Shooting] checkbox Continuous Shooting, the software will automatically save a set of images after a single [Capture] is executed.
- Click [Config] to set continuous capturing image numbers and the interval time .



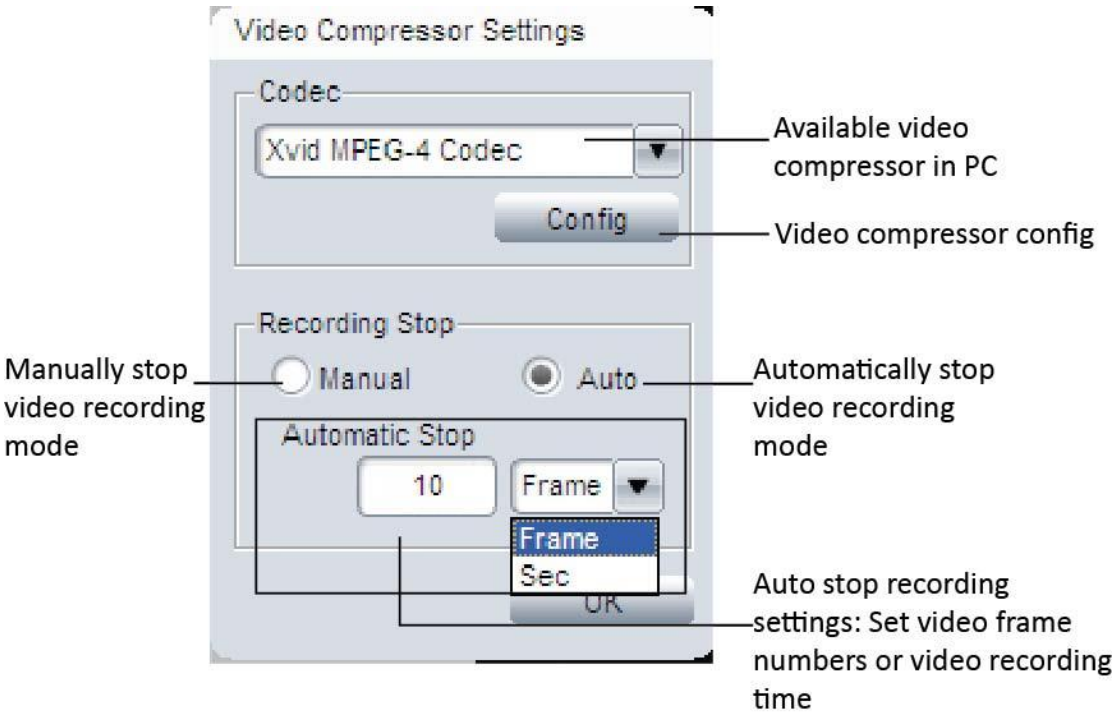
Video recording

Click [Video] 

/ 

, start/ stop video recording.

Click [Rec Config] to get video recording configure window.



It provides [Manual] and [Auto] modes to stop the recording.

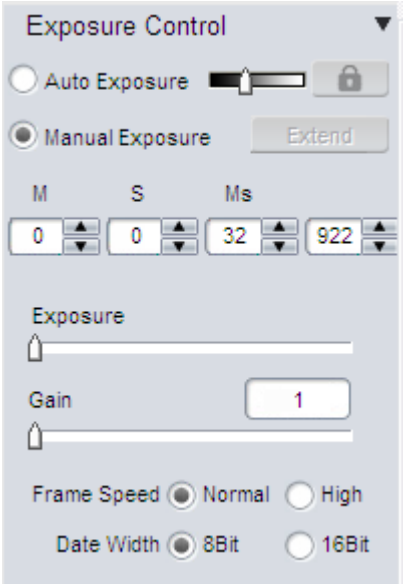
- [Manual] mode, [Video] button is pushed to start and stop the recording.
- [Auto] mode, pre-set the number of frames or the time for videos and [Video] is pushed, IS VISICAM SOFTWARE will stop the recording automatically after save pre-set number of frames or pre-set time is up.
- [Rec Config]>>[Codec] will also list all the available video compressors on the PC.

The video taken without any compression will be very large size. IS VISICAM SOFTWARE
Will automatically search the installed video compressors installed on the PC.

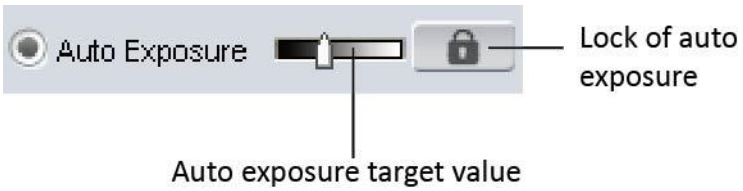
Exposure Control

Change the Exposure time, Gain to adjust the image brightness. Select frame speed to get different live image frame rate. Set 8-bit or 16-bit data width for captured images.

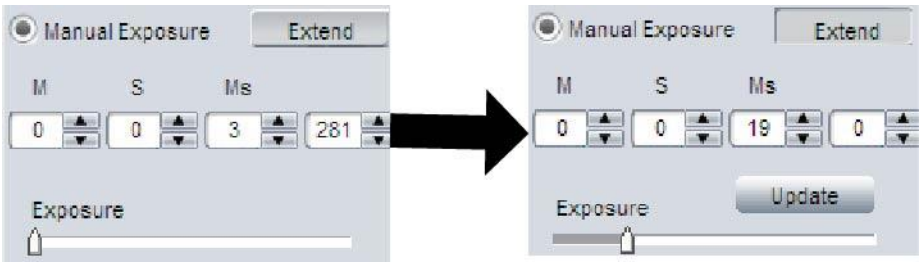
Auto Exposure



- Check [Auto Exposure] checkbox, software start to adjust the exposure time automatically to get proper brightness of live image.
- Auto exposure target value: Set the reference exposure time for auto exposure adjustment.
- Lock: will stop the auto exposure calculation.



Manual Exposure



Adjust the exposure time manually.

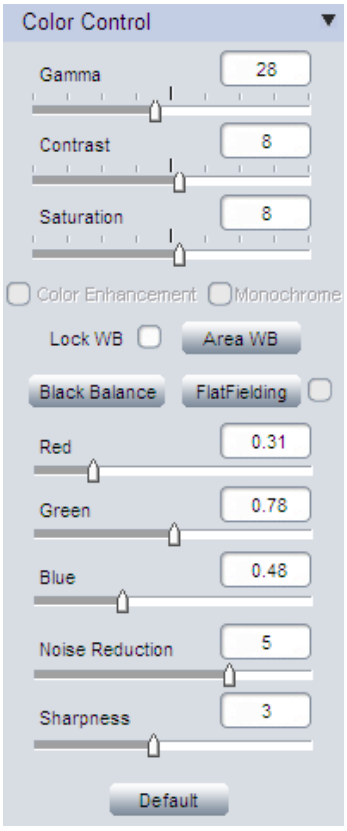
[Extend] Extend is used to get longer exposure time. This function is ONLY available for CCD cameras. For other cameras especially the CMOS camera, the maximum exposure time is shorter than 1 second, then [Extend] will be gray out.

[Update] Update appears after [Extend] is selected. Click on it to stop the previous exposure time and restart the new one immediately. For long exposure applications, we strongly recommend that [Update] is used to start a new setting. This will help to get the new exposed image earlier. If the exposure time is less than 2-3 seconds, it is not necessary to use it.

Gain, Frame Speed & Data Width

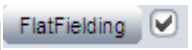
Gain		Increase the power of the image data. Higher gain gives brighter images, but also makes the noise signal more obvious.
Frame Speed	High Speed	Corresponding to high pixel clock. Gives faster frame rate.
	Normal Speed	Offer lower frame rate than High Speed, but gives longer maximum exposure time.
Data Width	8-bit	8-bit images use 2^8 = 256 gray levels to represent image details.
	16-bit	16-bit images use 2^16 gray levels to represent image details. ONLY available for CCD & Discovery series cameras in .Tiff and .Raw formats.

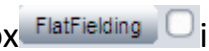
Color Control



Flat Fielding Function

Flat fielding function is used to correct the uneven background brightness.

- Click on [FlatFielding] 

to start the flat fielding parameter calculation and apply it to the live images.
- When the check box 

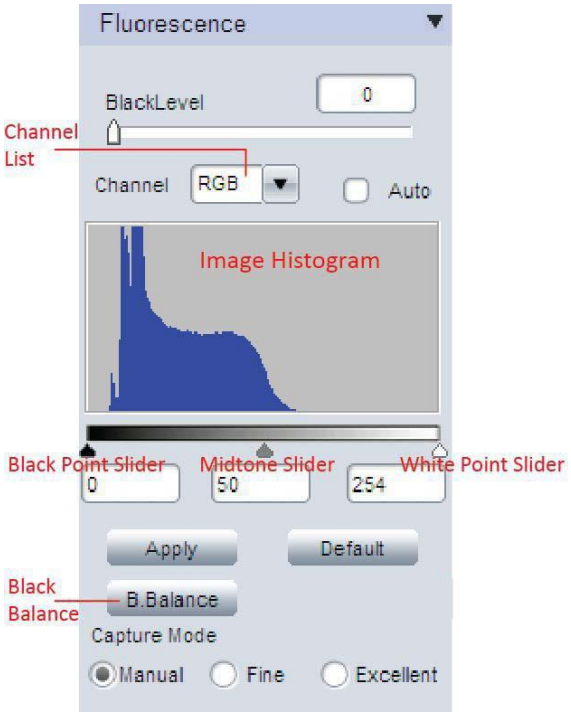
is unchecked, the calculated flat fielding parameter is NOT applied to the live images.

To get better flat fielding result, Move the sample to a blank area first, apply the flat fielding, then move the sample back.

When the lighting is changed, re-do the [FlatFielding] to correct the uneven brightness.

Fluorescence Settings

Included in our software are useful parameter settings for fluorescence or low light imaging. It helps to get better images easier and faster.



Black Level

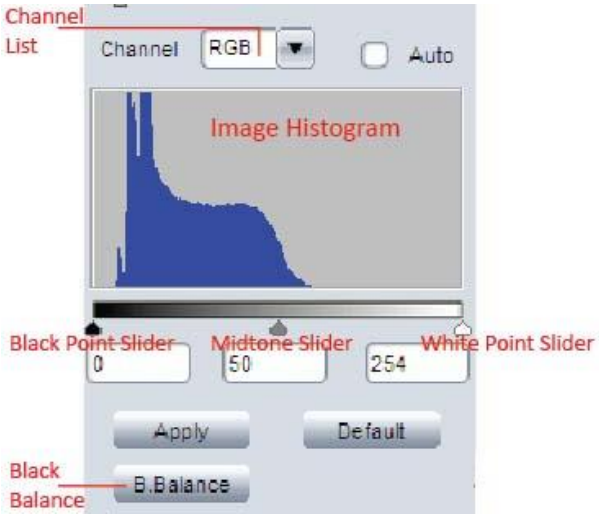
Black level function defines the brightness level at the darkest part of the image. In low light imaging, it helps to see more details in the dark area.

In low light application, it usually needs quite a long exposure time to get proper images. If you set a long exposure time at the beginning, you might need

quite a long time to find your target and get a proper image (wait for finishing a long exposure to get a new frame image, adjust, wait...). When searching for the imaging target at the beginning, we recommend to set a shorter exposure time, but make larger Gain and Black level first. After you find the target, then reduce the Gain and Black level, and increase the exposure time. This will aid in a better image acquisition.

Levels

The levels tool can move and stretch brightness levels in a histogram using three main components: a black point, white point and midtone slider.



Channel List: This allows to choose whether to edit RGB channel or one of the three, individual, color channels (Red, Green and Blue).

[Auto] checkbox: Adjust the live image levels automatically.

Manual adjustments of image levels.

Move the White Point Slider towards left, it is able to reveal some information in dark area. If move Black Point Slider towards right, it will reveal bright area information.

After adjusting the levels, click Apply to confirm the setting. If you need to go back to the original image, click Default to restore the image.

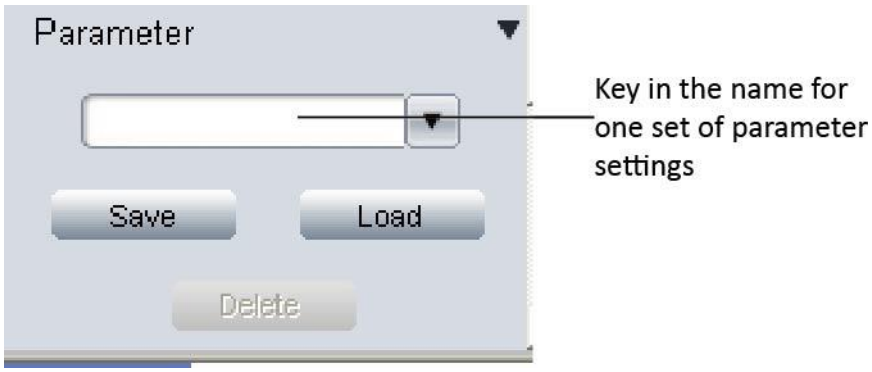
[Black Balance]: Gives camera a reference to “true black”. ONLY needed in dark field imaging.

Capture Mode

Three capture modes are specially developed for fluorescence imaging.

Manual	Capture the image with current parameter settings
Fine	Automatically reduce the gain and extend the exposure to get the same brightness image. (Lower gain will give lower noise level images)
Excellent	Automatically save 10 images with current settings and then get an average image. (It needs to take a while to capture an image in this mode.)

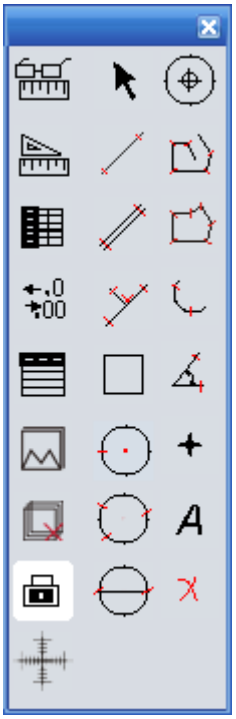
Parameter Group



Save parameter sets for different applications. The saved parameters include exposure time, gain, frame speed, data width, gamma, contrast, saturation, color enhancement status, monochrome, RGB gain and black level. It allows users to save 20 set parameters.

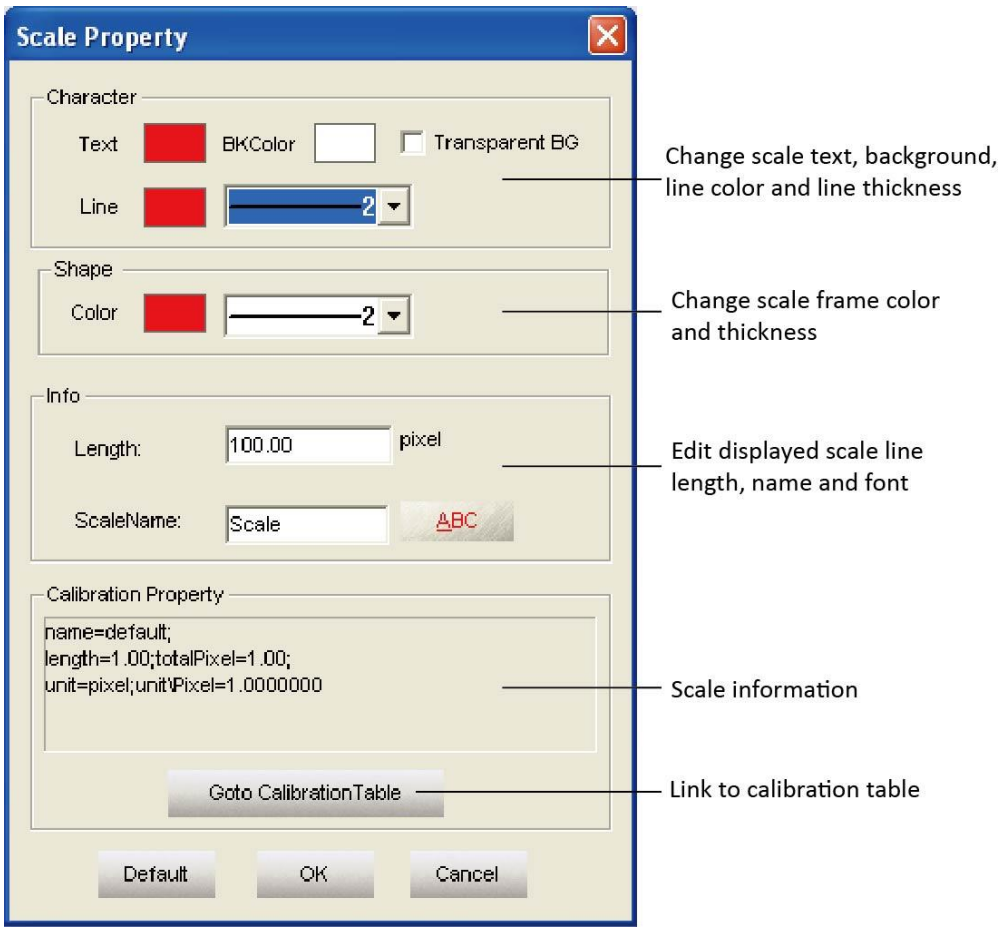
Chapter 3: Live & Still Image Measurement

Click on [Measure] at the top of the IS VISICAM SOFTWARE to get the measurement 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
	Polyline	Measure polyline length.
	Polygon	Measure polygon area and perimeter.
	Arc	Measure a curve angle, radius and length.
	Angle	Measure the angle
	Count	Counter. Manually 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

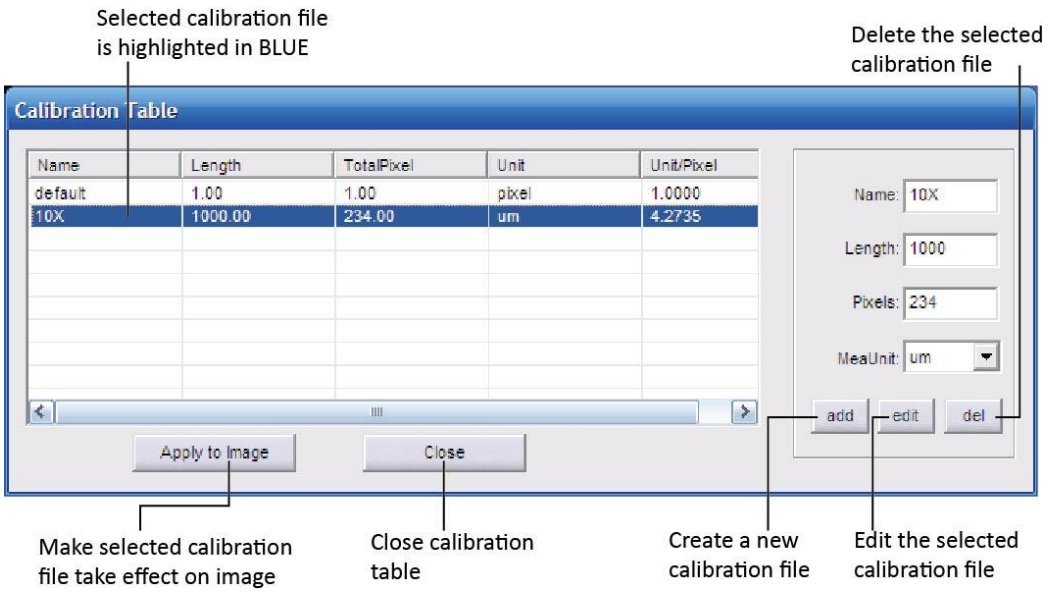


Double click on the scale to get its properties and make changes to it.

Create Calibration File

To measure the samples real size, the corresponding calibration file needs to be created first. Please check Appendix 1 to get more details about calibration.

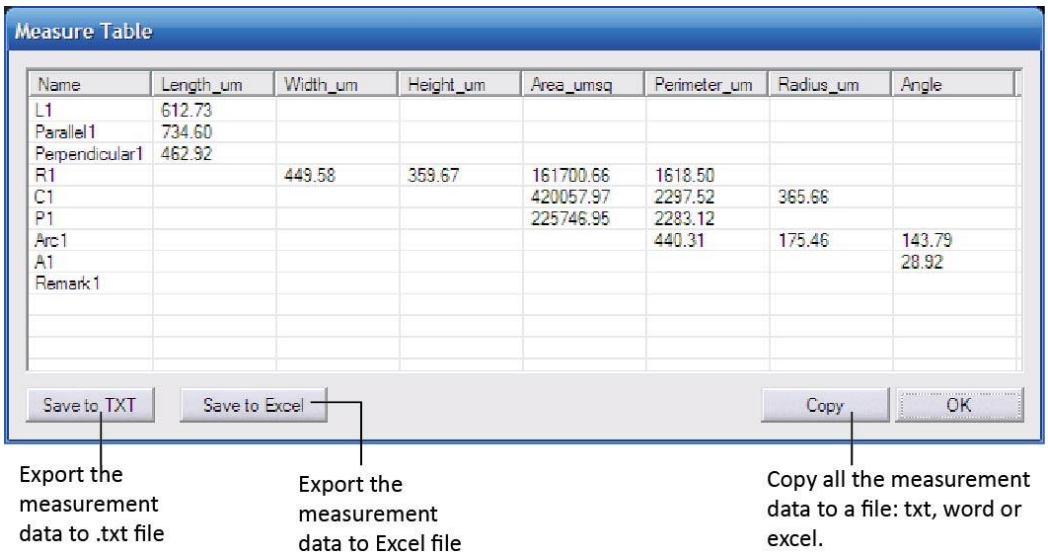
Calibration Table



- 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 inaccurate. 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.

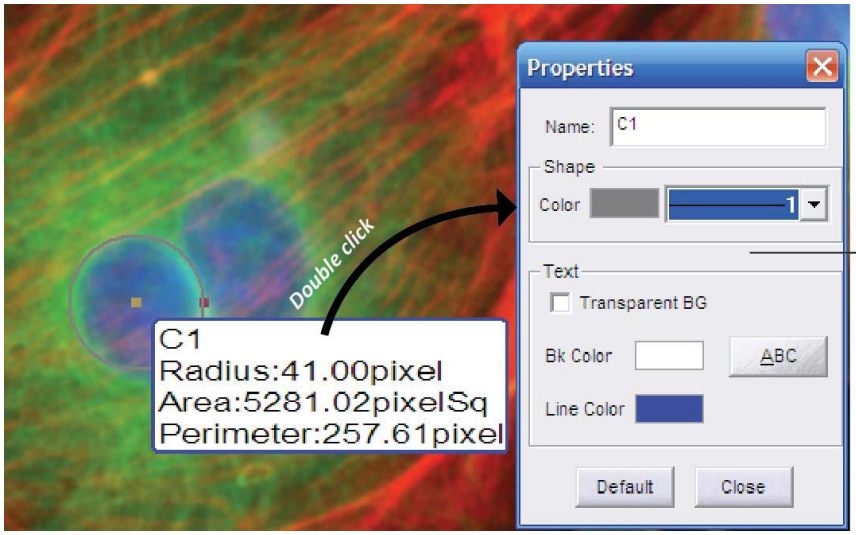
Measurement List



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

Measurement

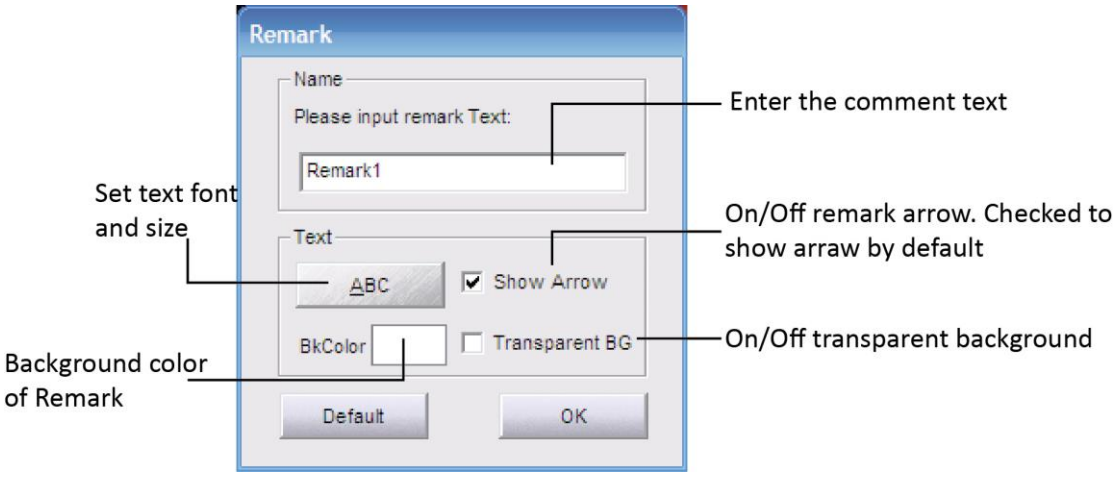
IS VISICAM SOFTWARE allows you to do line, parallel, perpendicular, rectangle, circle, polygon, arc and angle measurement. The [Count] function allows you to manually count the objects. And the [Annotate] function offers to add comments on the images.



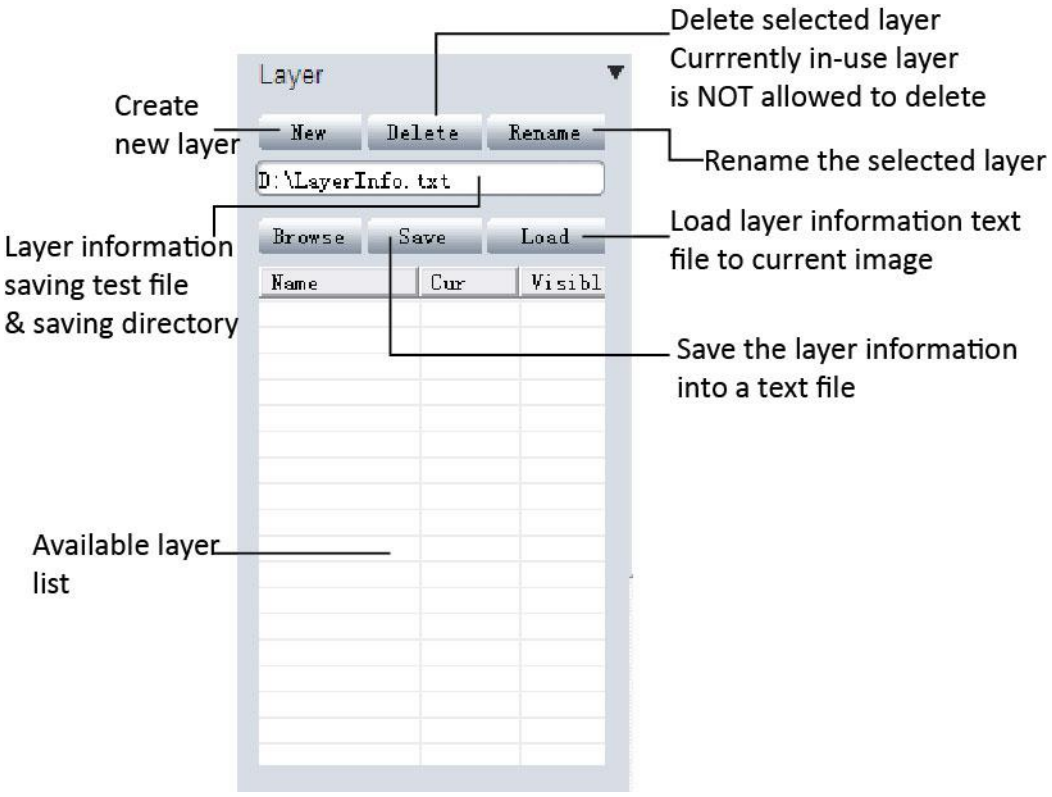
Double click on the measure data to get the measurement configure window. It allows you to change the measured data name, color, thickness, background color and the character font.

Annotate

Select [Annotate] and click on the image area which you prefer to add a remark.



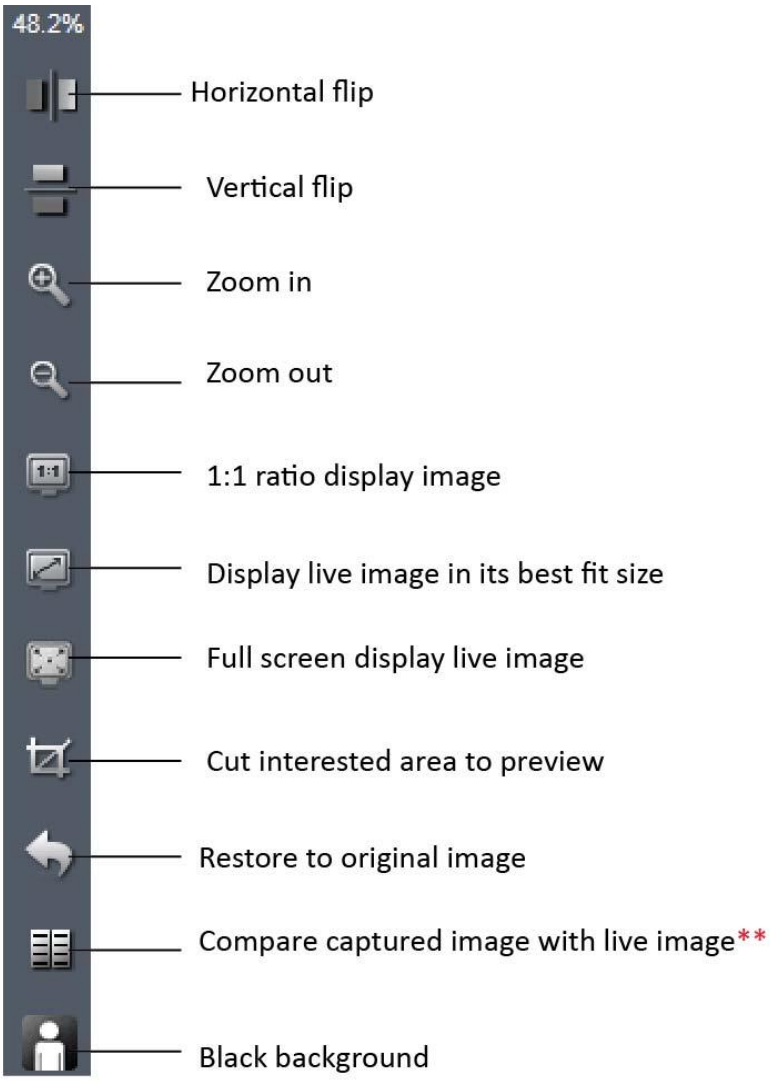
Layer



When need to apply mass measurement on the images, some different measurements would be overlaid which make the measurement much difficult. The layer function allows to create multiple layers to do different measurement which will make adding a large number of measurements on the processed image review simple and easy. Go to Appendix 2 to get more details.

Live image shortcut

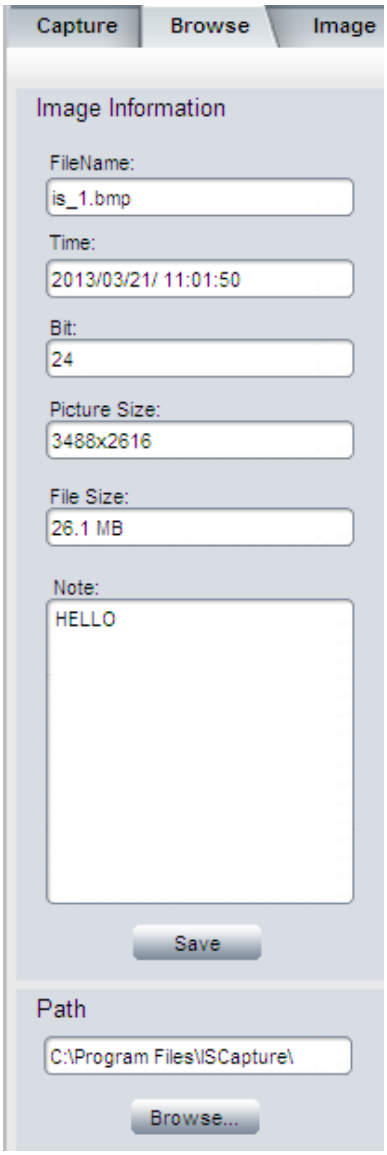
On the right hand side of the live image window, some shortcuts are provided to process the live image quickly.



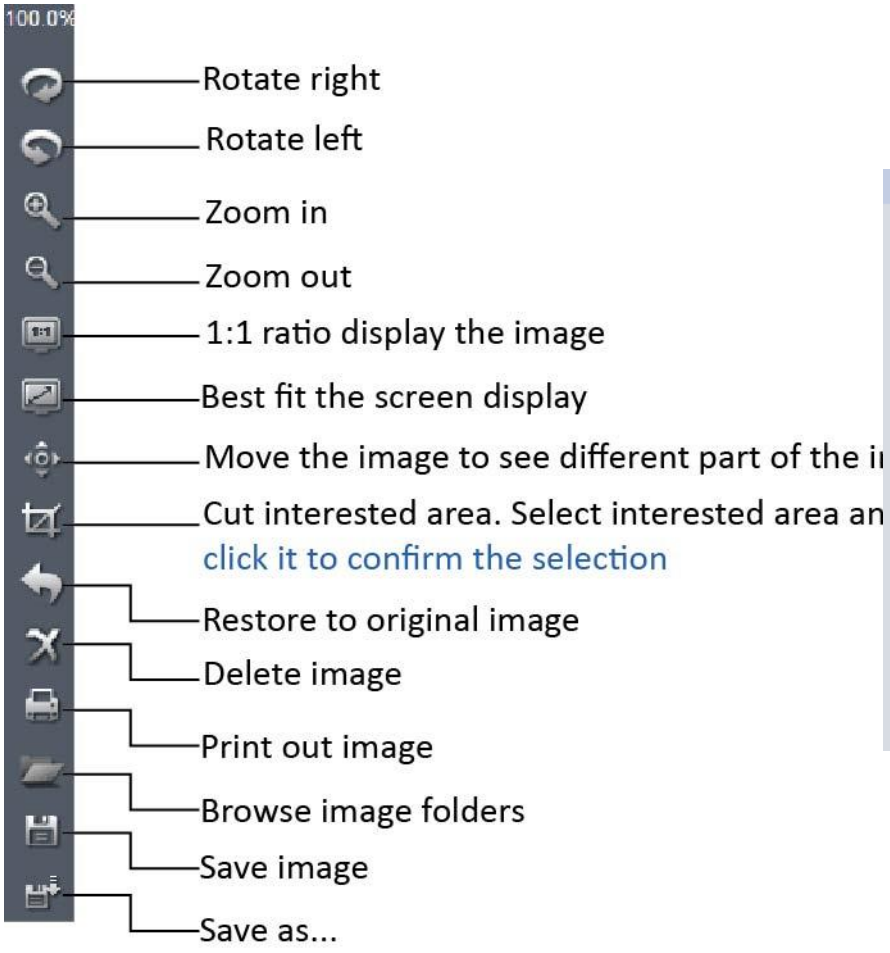
** Compare function: Live image will be displayed on the left side. Click on the taken image thumbnail to select it to compare with live images (Chosen compared image will be enhanced in gray-white frame).

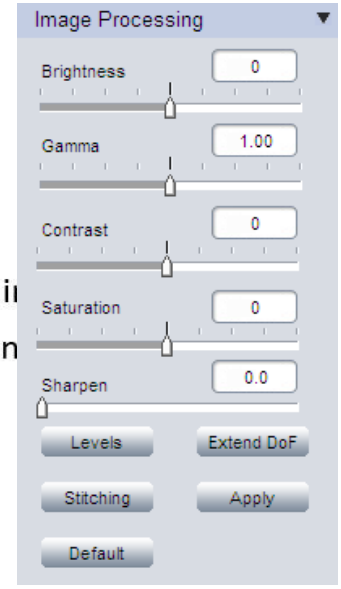
Chapter4: Image management

View images in [Browse] panel, it displays the image File name, capturing time, color depth (bit), picture resolution and image size. It also allows you to add comments to any individual image. When you view this image next time in the IS VISICAM SOFTWARE, it will show the image comment.

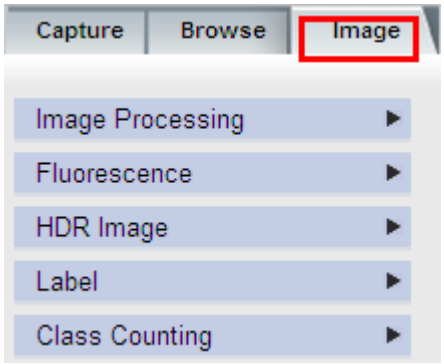


IS VISICAM SOFTWARE provides some quick functions on the right hand side of the software in ***Browse*** or ***Image*** mode.





Chapter4: Image Processing



In this section, IS VISICAM SOFTWARE provides advanced image processing functions and also allows you to do the measurement on the still images.

Image Processing

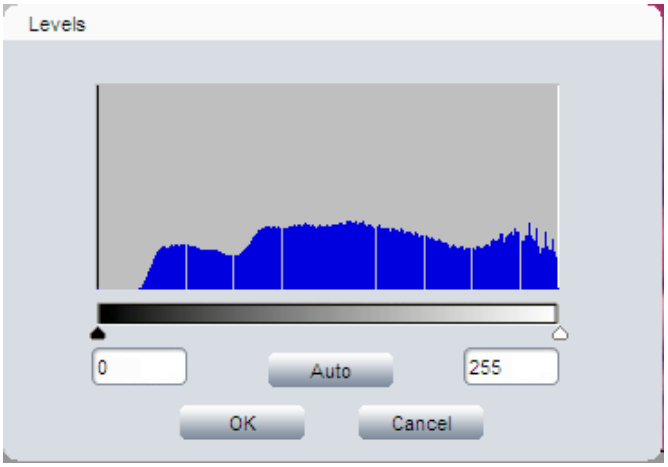
Provide basic captured image processing functions and allows additional advanced functions such as extended Depth of Focus and image stitching.

Brightness	Adjust captured image brightness. Default brightness = 0
Gamma	Adjust captured image gamma. Default gamma = 1.00
Contrast	Adjust contrast. Increase the contrast, the shadows become darker and the highlights brighter. Decrease the contrast, the highlights grow dim and the dark areas lighten up
Saturation	Adjust the color saturation. Fully-saturated colors are very bright, while low saturation are grayish.
Sharpen	Adjust the image sharpness. Sharpness is the contrast on the edges. Sharpening increases the bright and dark lines on edges.
Levels	Adjust image levels. Get more details in [Fluorescence]>>[Levels]
Extend DoF	Extend the Depth of Focus (DoF)
Stitching	Image stitching. Combine multiple images with overlapping fields of view to produce a segmented panorama or high-resolution image.
Default	Restore Brightness, Gamma, Saturation, Sharpen and levels back to the default value
Apply	Confirm to apply all the settings to the image.

After clicking [Apply], all the settings are applied to the image. NOTE: Once you choose this you can NOT revert to the original image.

Level

Push [Levels] Levels to get the image histogram. It allows you to adjust the image levels. The level adjustment is the same as live image level adjustment. Get



more detail in [Capture]-->> [Fluorescence].

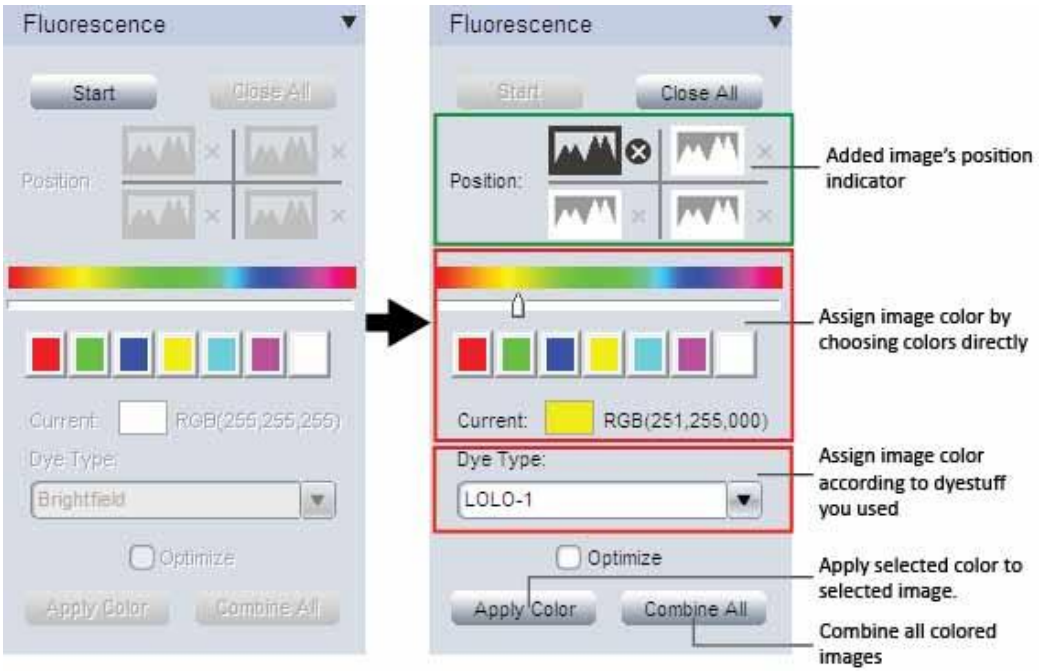
Extend depth of focus

Extend depth of focus functions combines multiple images to create one focused image. It is used to extend a picture's apparent depth of field. Go to Appendix 3: Advanced Functions to get more details.

Image stitching

Click on Stitching to get the image stitching configuration. It combines multiple images with overlapping fields of view to produce a large panorama or high-resolution image. Go to Appendix 3: Advanced Functions to get more details.

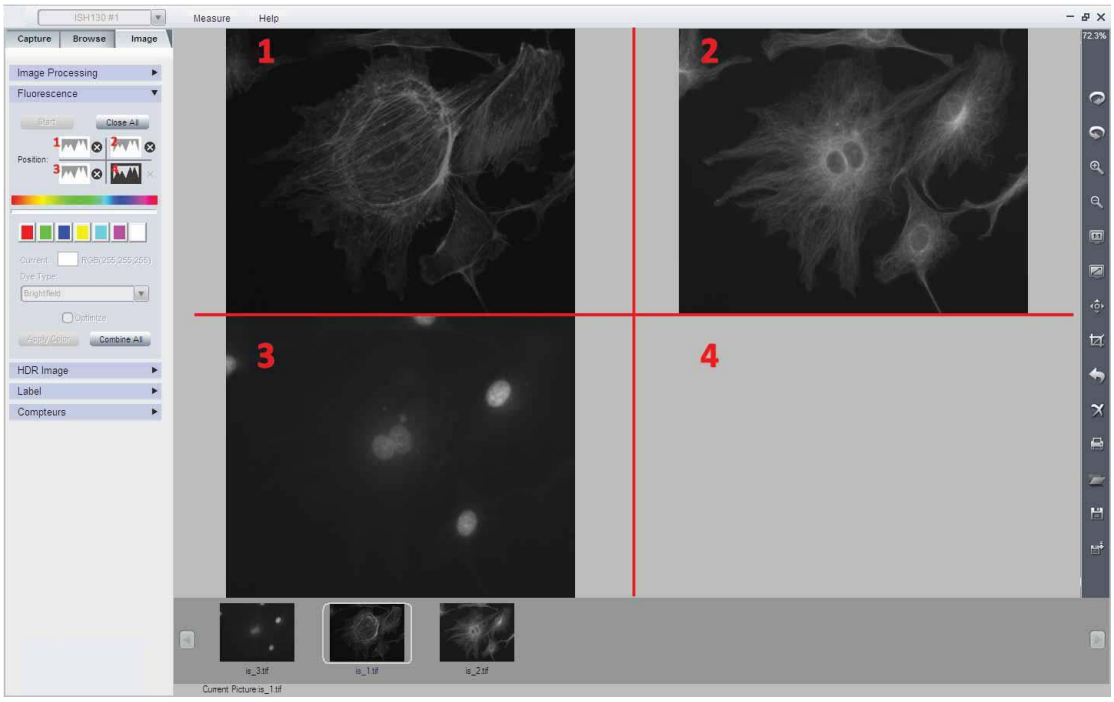
Fluorescence



This function is used to assign Black & White fluorescence images with different colors and combine them together into one image.

Step 1: Open the images which are used for combination in IS VISICAM SOFTWARE , then click on [Start] to start the fluorescence combination.

Step 2: Click on image thumbnails to add corresponding images. The image position indicator shows the added images' position. Maximum 4 frame images are allowed to add for fluorescence combination.



Step 3: Click on one added image indicator to start applying color for it.

① Click on one image indicator to select it (The selected one will be in dark color, unselected ones will be gray white).

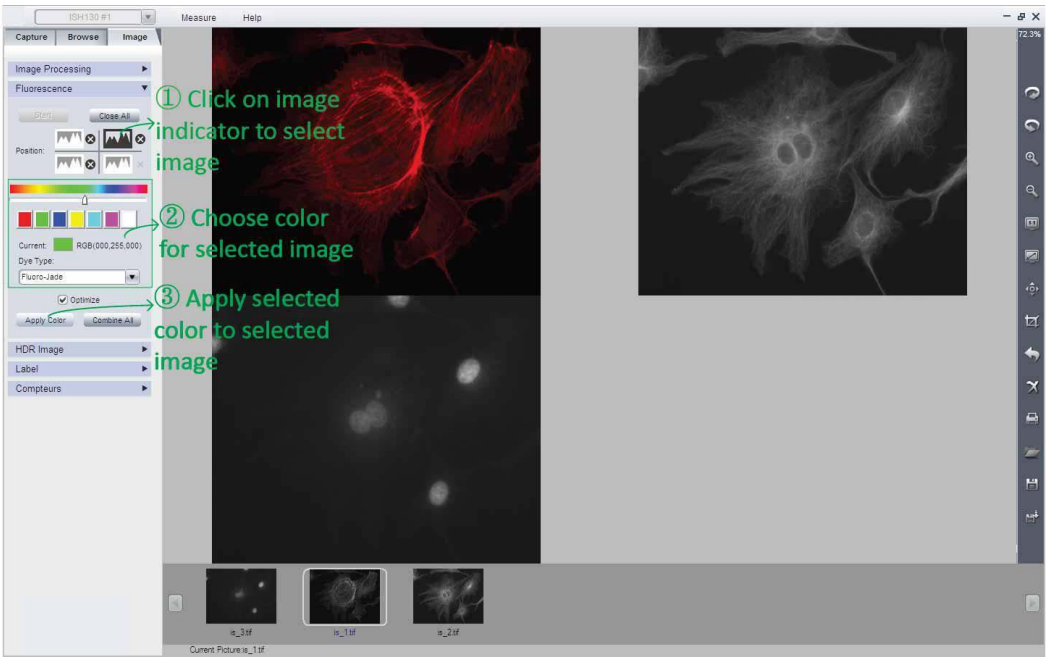
② Assign color for selected image.

Two ways provided for color assignment:

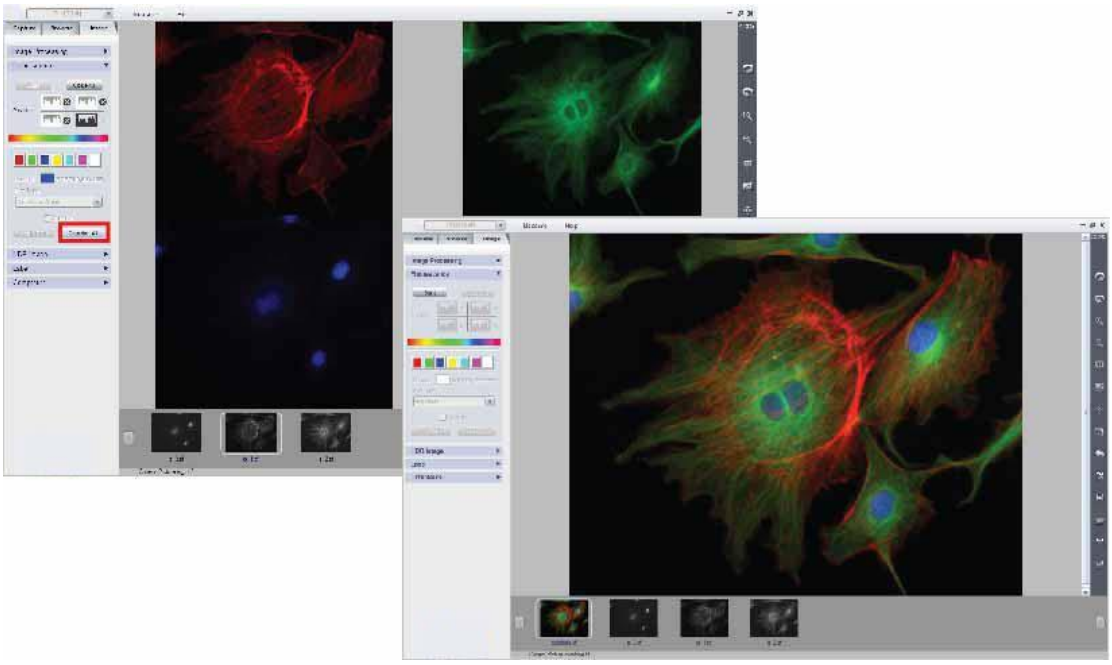
a. Click on the preferred color or slider to choose it.

b. Assign the color according to the fluorescence dye in the drop-down menu [Dye Type].

③ Click on [Apply Color] button to add selected color on the image.



Step 4: Click on [Combine All] to combine all the colored images.

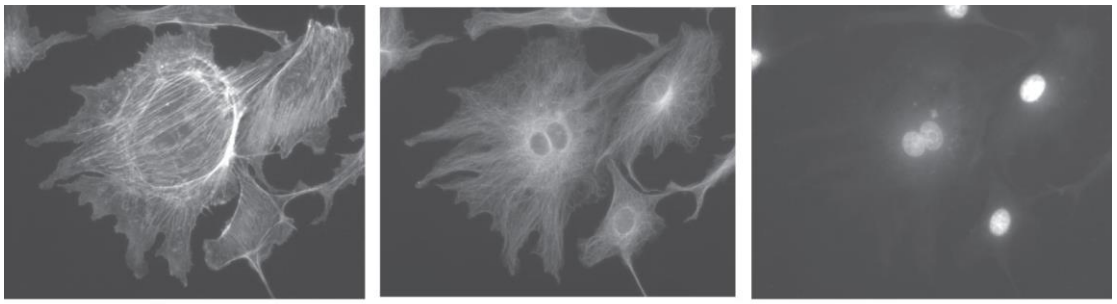


Optimize Optimize checkbox is recommended to select during the combination. It will optimize image background to get a better image. If the optimize function is not selected, the created image will keep all the original information. No extra processing is applied to the image data.

After combining the fluorescence image,

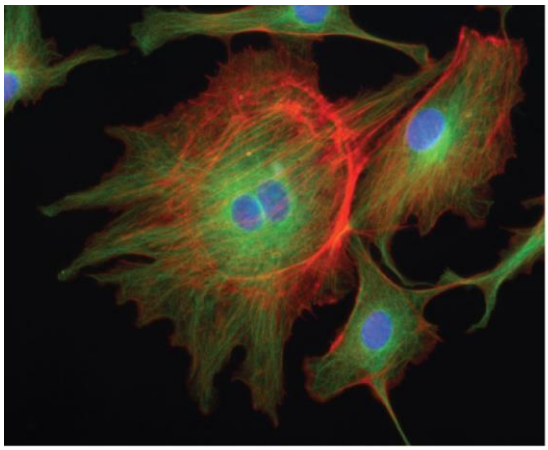
Sharpen 1.6 [Sharp] function in [Image Processing] can help to get sharper images and see more image details.

If you add the wrong image or wrong color to selected image, just click on the tiny cross beside each indicator to delete it. If you want to cancel the current combination, just click on [Close All] to cancel the combination.
Original images:

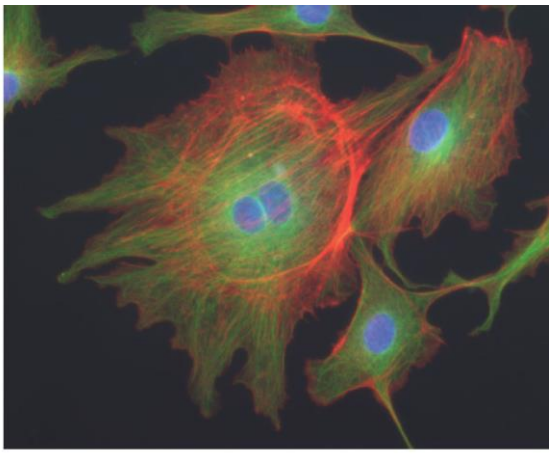


Original images

Combined image:

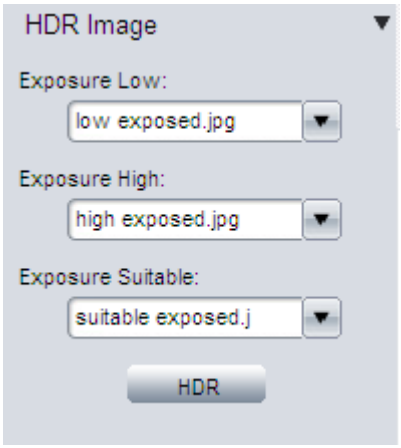


Combined image with optimization



Combined image without optimization

HDR Image

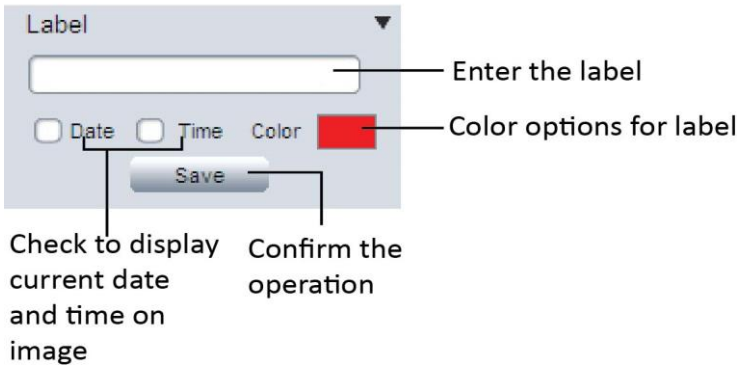


High Dynamic Range (HDR) image is used to get greater dynamic range of an image.

- Take pictures for one same scene with different exposure time and load them in the software.
- In the drop-down menu, select corresponding images for [Exposure Low], [Exposure High] and [Exposure Suitable].
- Push [HDR] button to combine different exposed images into one. The generated HDR image will be named as “hdr_image”.

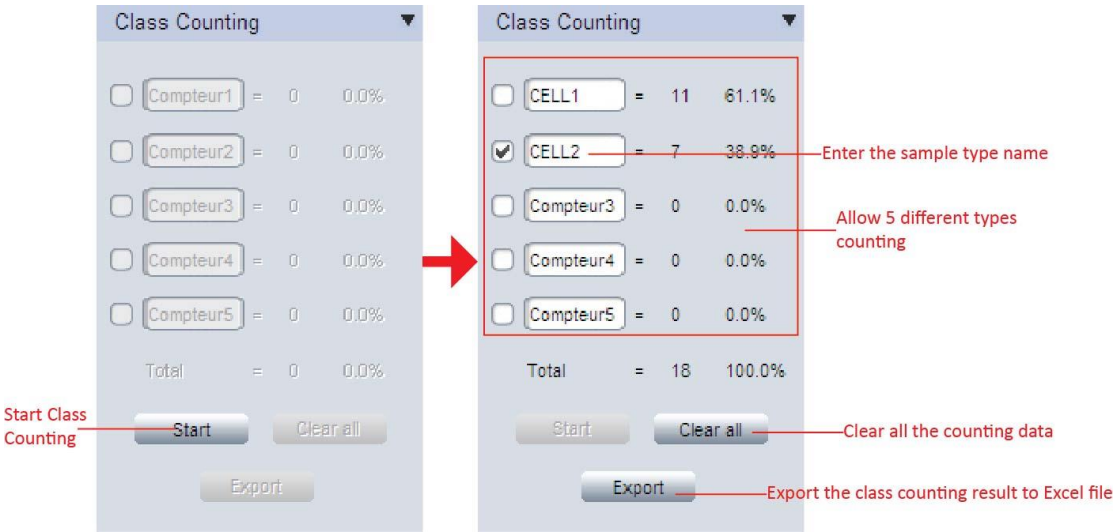
If the different exposed images are not loaded in the IS VisiCam software yet, the shortcut  on the right hand side of the IS VisiCam software allows you to browse any image simply.

Label

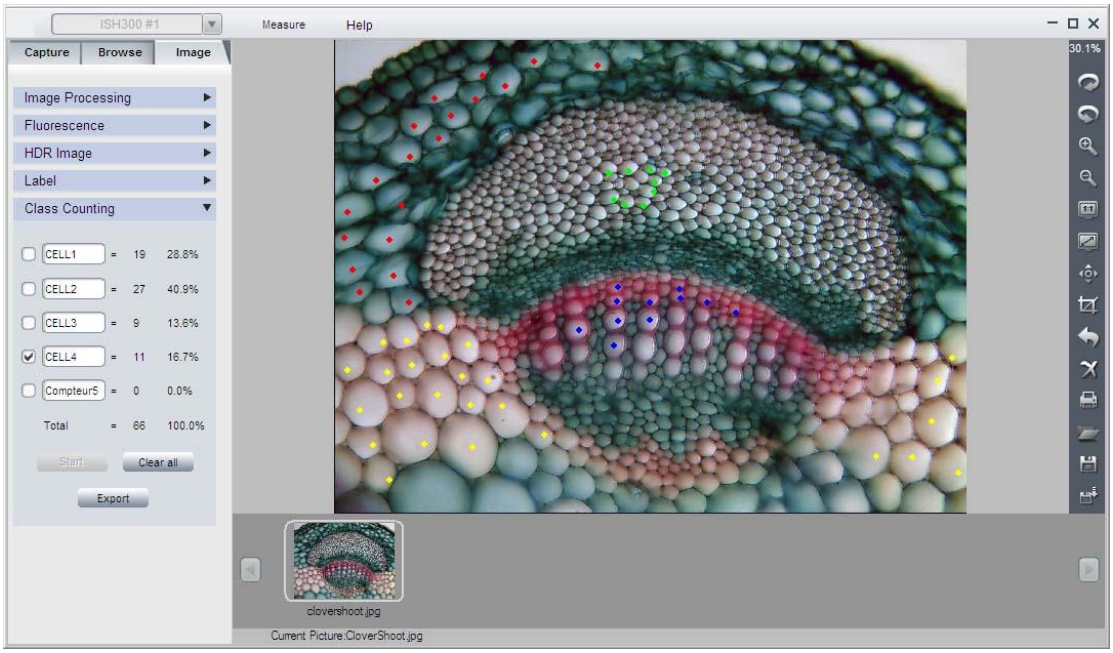


Add label text and the date and time on the the image. Click [Save] to save the labels.

Class Counting



Class counting function allows to do 5 different types samples counting manually. Each type will be assigned with different color dots.

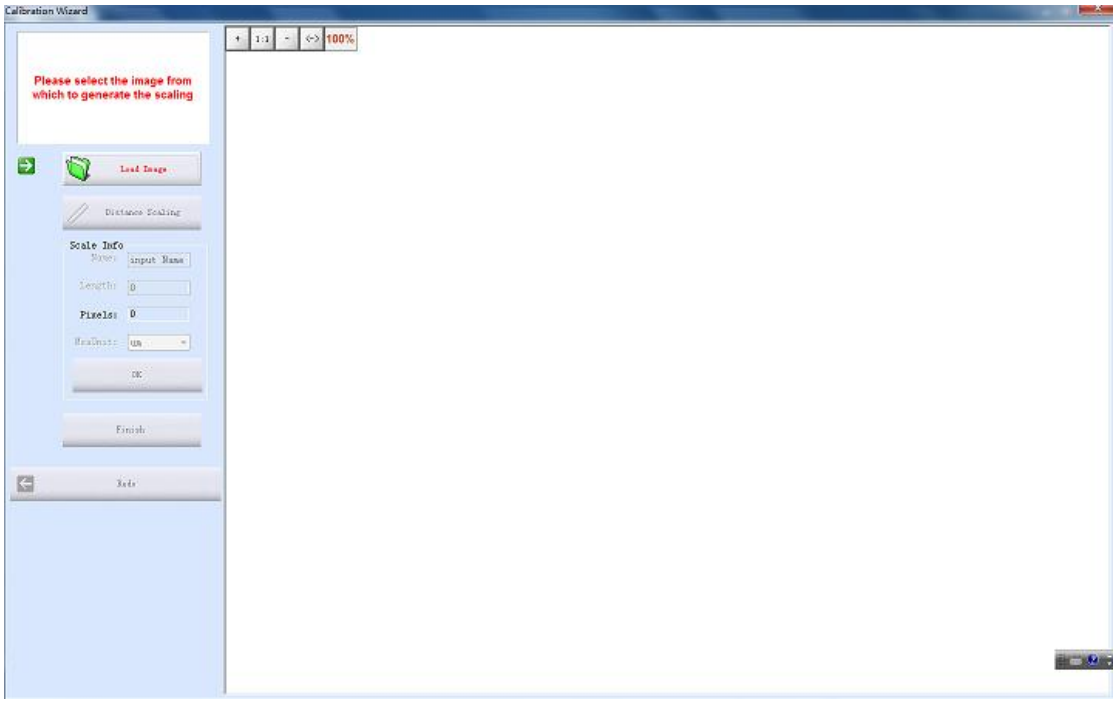


Appendix 1:How to create calibration file

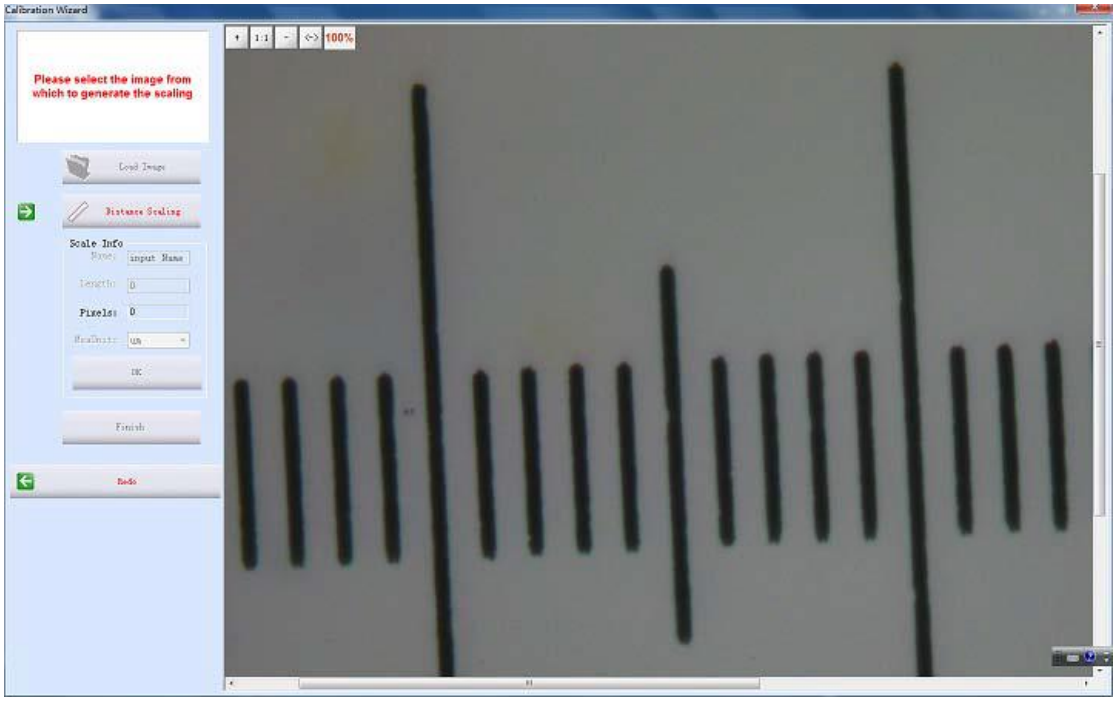
1. Take pictures of the calibration slide in all the required working objectives and resolution (if a reducing lens is also used in your application, it also requires you to take the calibration slide picture with the reduce lens attached).

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.

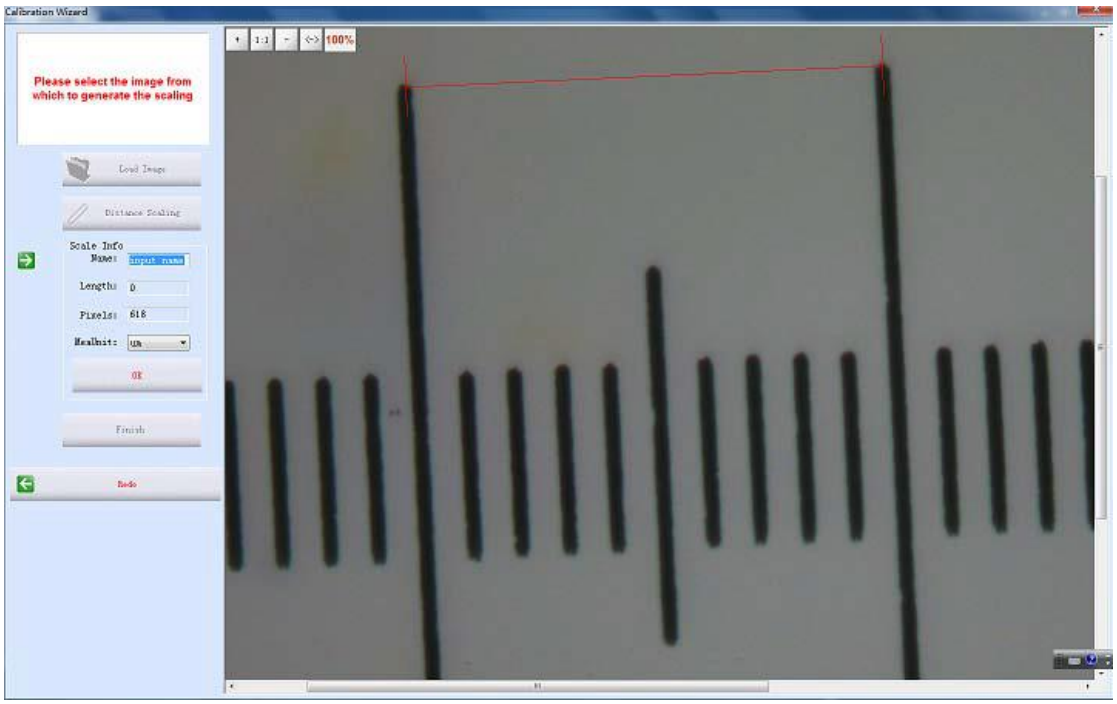


3. Click [Load Image] to load the calibration slide picture taken in Step1.



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.

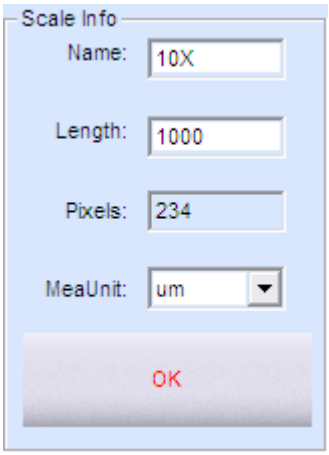


5. Enter the name for the calibration file and the length of the line you draw.

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 x 0.1mm x 1000 = 1000 µm.

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

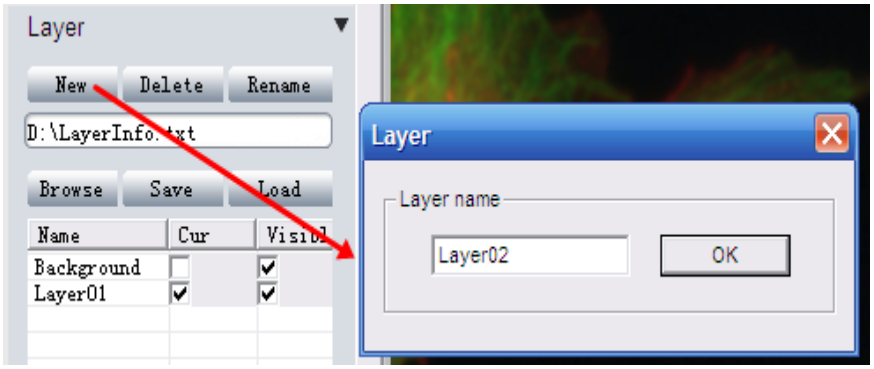


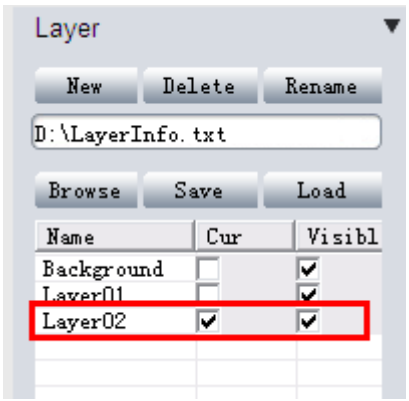
Appendix 2: Use Layer function for mass measurement

When need to apply mass measurement on the images, some different measurements would be overlaid which make the measurement much difficult. The layer function allows to create multiple layers to do different measurement which will make adding a large number of measurements on the processed image review simple and easy.

If you have already applied some measurements on the image, the **[Measure]-->[Layer]** function automatically creates “Background” and “Layer01” for the current image.

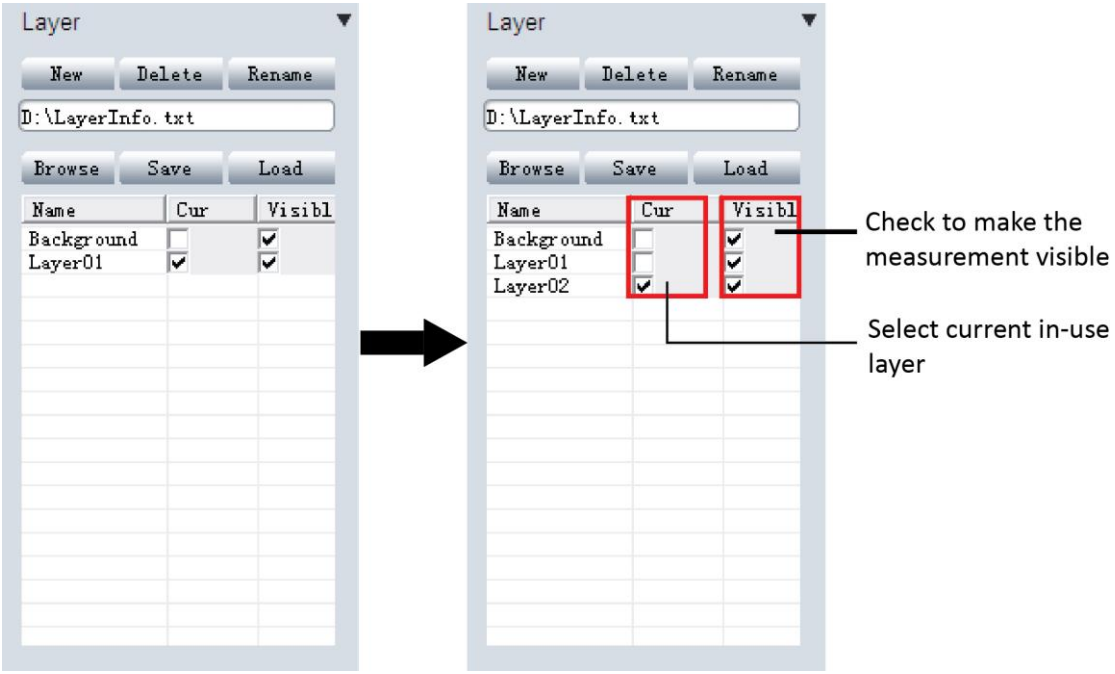
Click [New] to create a new layer. Allow to key in the preferred name for the new layer. It uses “Layer02”, “Layer03”... etc as the layer name by default.

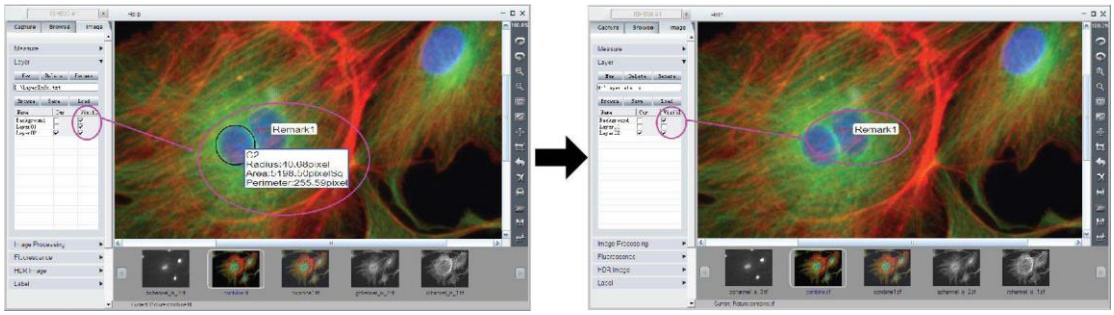




Now loads of measurements can be applied on different layers. It allows you to choose any layers to view.

Checked [Cur] means the corresponding layer is displayed currently. Select different [Cur] to switch between different layers. In the [Visible] column, the selected check box means all the measurements in the corresponding layers also display on the current layer. Uncheck the check box, and the corresponding measurement will be invisible in the current layer





The layer information is saved in a text file.

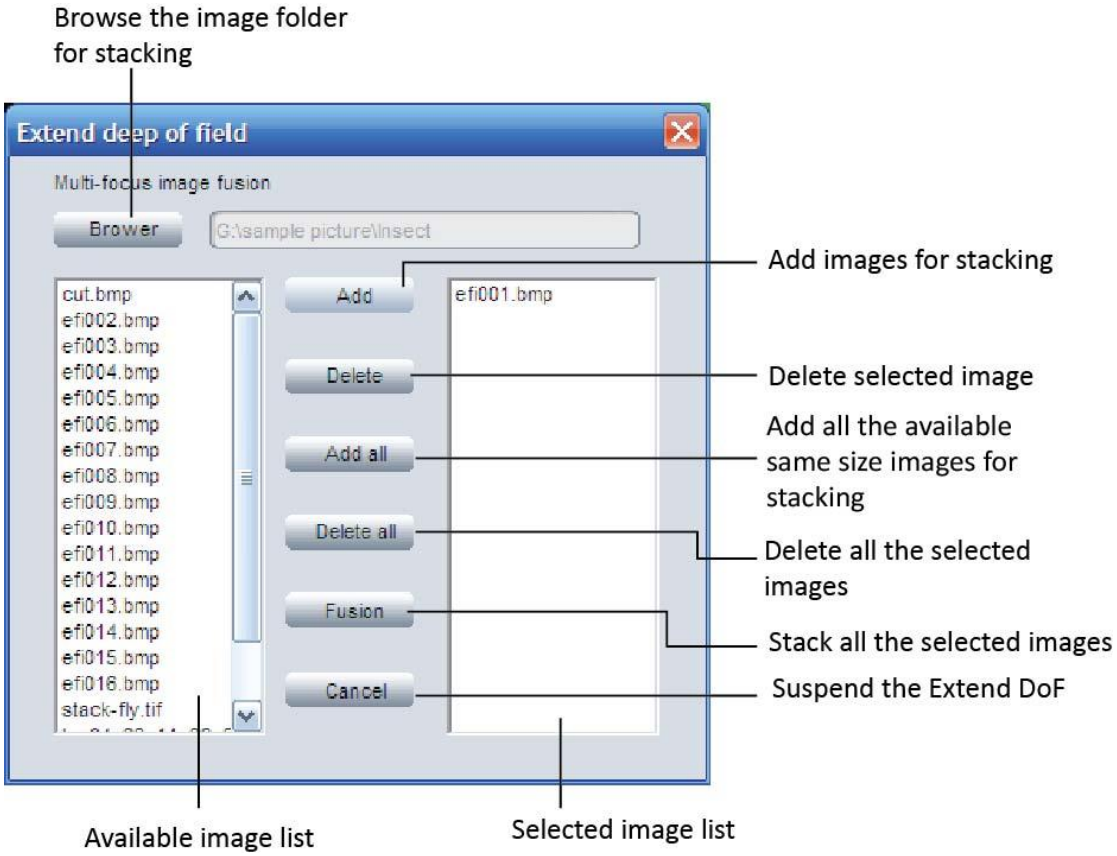
- Click [Browse] to choose the text file saving directory and enter file name. Then click [Save] to save the current layer information in the text file. The layer information will be saved as “LayerInfo.txt” in Disk D by default
- Click [Browse] to find the existed layer information text file. Click [Load] to load the layer information to the current image.

Appendix 3: Advanced functions

Extend depth of focus

Extend depth of focus functions combines multiple images to create one focused image. It is used to extend a picture's apparent depth of field.

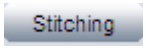
Push [Extend DoF] Extend DoF to get below dialog box. Select the corresponding images and apply the function. This function combines multiple images to create one focused image.



- Browse the image folder which you are going to do the stacking.
- All the images in the folder will be listed on the left hand side. Click on one image, the image will be highlighted in BLUE.
- Click [Add] to add the highlighted image to the right hand side (the selected source images for stacking).
- [Add all] button allows to add all the same size images in the left hand side to the right as stacking source images by just one click.
- Click [Fusion] to stack all the selected source images and get an image with an extended depth of field.

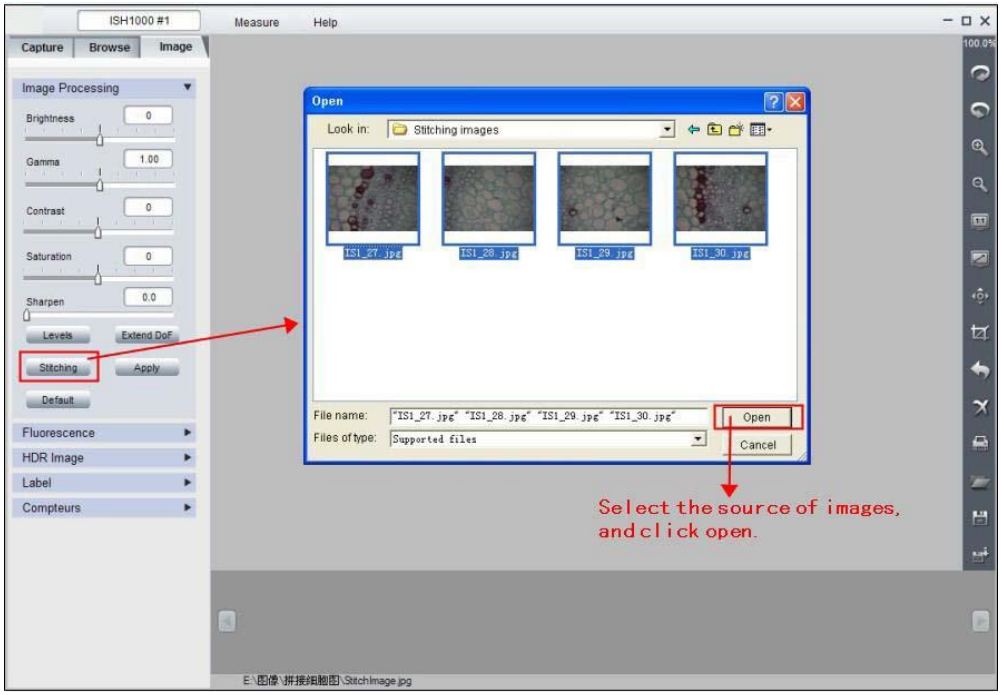
When selecting a wrong image as stacking source, just click on it and then click [Delete] to remove it. [Delete all] will remove all the selected images.

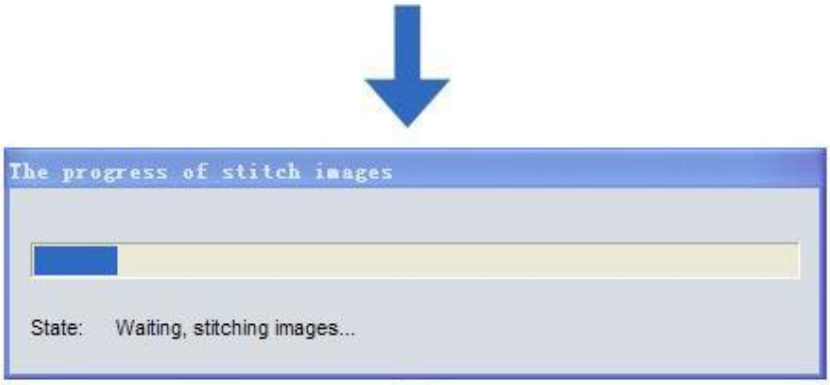
Image stitching

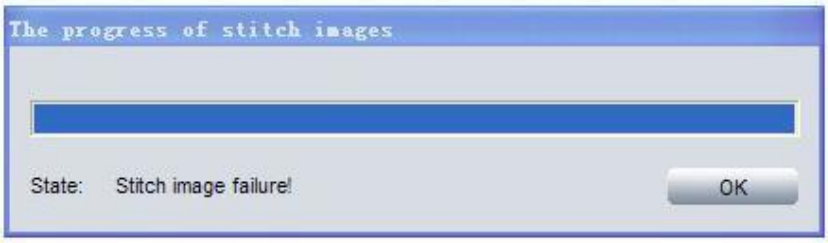
Click on 

to get the image stitching configuration. It combines multiple images with overlapping fields of view to produce a large panorama or high-resolution image.

1) Click [Open] browse the stitching source images. Select all the source images and open them.
2) Click [Stitching] to start stitching all the source images.
3) Click [Save] to save the stitched image in the same directory as the source images with the name of date and time stamped.







If the source image did not meet the requirements, you will be prompted image stitching failure!

Siège social du fabricant

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http://www.vwr.com

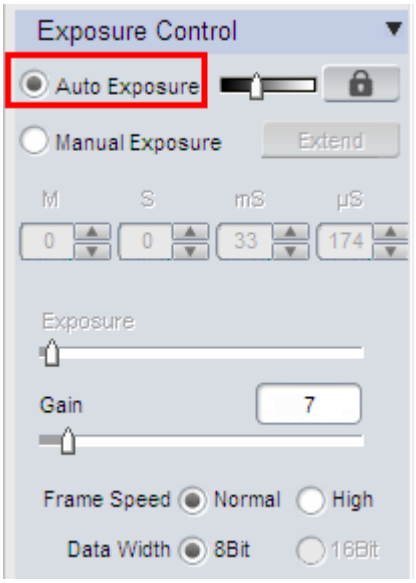
Contenu de l’emballage

Description	ECN#	Qty
CD-ROM contenant le logiciel		1

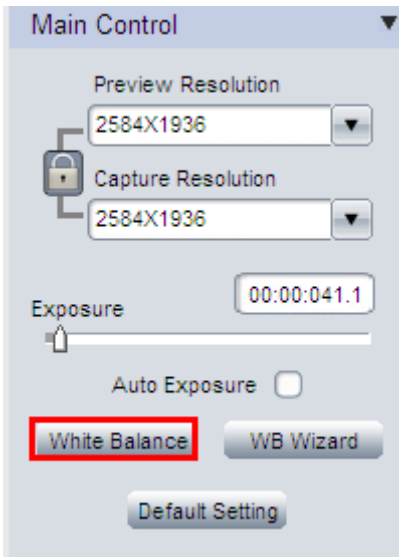
Système d’exploitation conseillé

- Compatible avec un PC IBM : Windows 7 / 8 / 10 (32&64 bit)
- Mémoire vive RAM: 250Mb, lecteur de disque dur : 250Gb minimum
- Interface USB 2.0
- Lecteur de CD-ROM (pour l’installation des pilotes et du logiciel)

Réglages de IS VisiCam Image Analysis



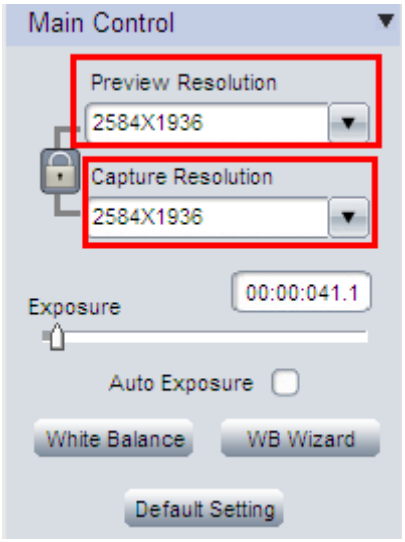
1. Régler **Auto Exposure** (Exposition automatique). Observer l'aperçu et régler le microscope (ou l’objectif) pour mettre l'image au point. Normalement, la fonction d'exposition automatique peut avoir un aperçu avec une bonne luminosité. Si l’aperçu est encore sombre, régler manuellement le **Gain** au centre du curseur.



Lorsqu’on obtient un aperçu au point, remettre le **Gain** à sa valeur initiale, passer au mode manuel d’exposition et prolonger le temps d’exposition manuellement jusqu’à obtenir des images avec une bonne luminosité.

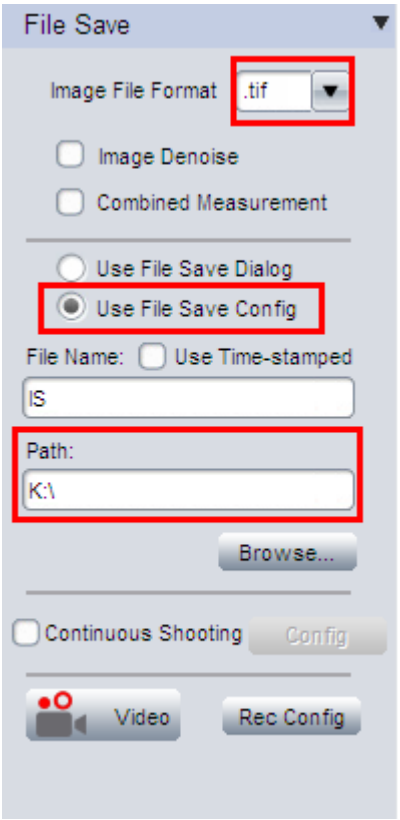
2. Cliquer sur la touche de **White Balance** (balance des blancs) pour corriger la couleur de l’image.

Pour obtenir un meilleur résultat de balance des blancs, mettre la lame sur une zone vide, puis appuyer sur la touche **White Balance** et ramener la lame avec l'échantillon. Sinon, appuyer sur **WB wizard** (assistant) et suivre les instructions pour terminer la balance des blancs.



3. Changer la résolution pour l'aperçu et capturer des images avec différentes résolutions.

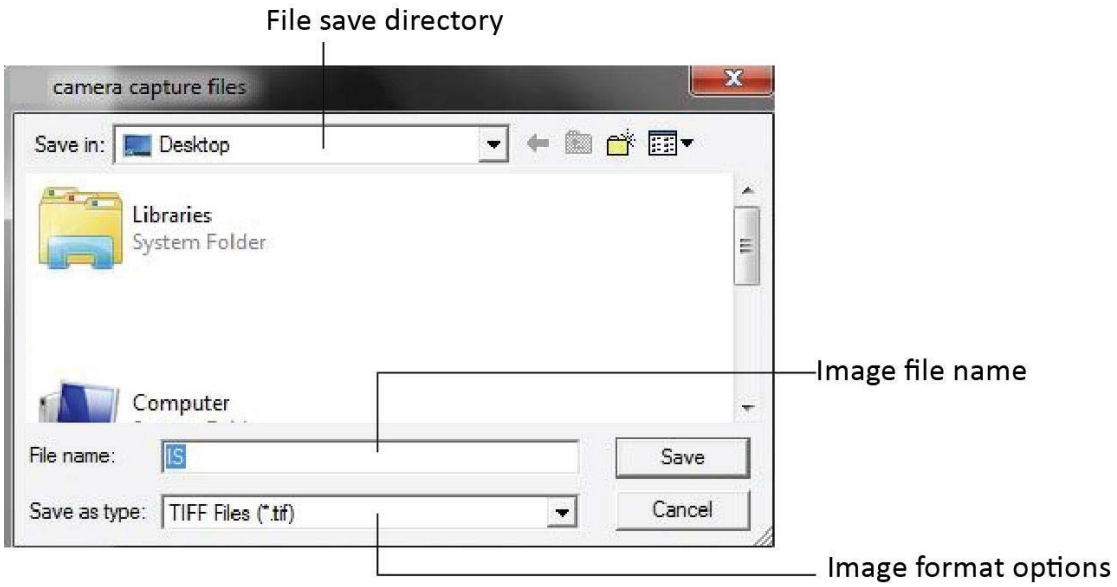
Cliquer sur l'icône de verrouillage  pour verrouiller / déverrouiller la résolution d'aperçu et de capture. Le déverrouillage permet de définir différentes résolutions d'aperçu et de capture (généralement, on utilise une basse résolution pour l'aperçu et une haute résolution pour la capture).



4. Sélectionner le panneau **File Save** (Enregistrer Fichier) pour définir le format d'enregistrement, le dossier et le nom du fichier.

a. Sélectionner **Use File Save Config** pour prédéfinir le format de capture d'images, le dossier où enregistrer et le nom du fichier.

b. Sélectionner **Use File Save Dialog** pour faire en sorte qu'une fenêtre contextuelle s'affiche pour définir le format de capture de l'image, le dossier où enregistrer et le nom du fichier.

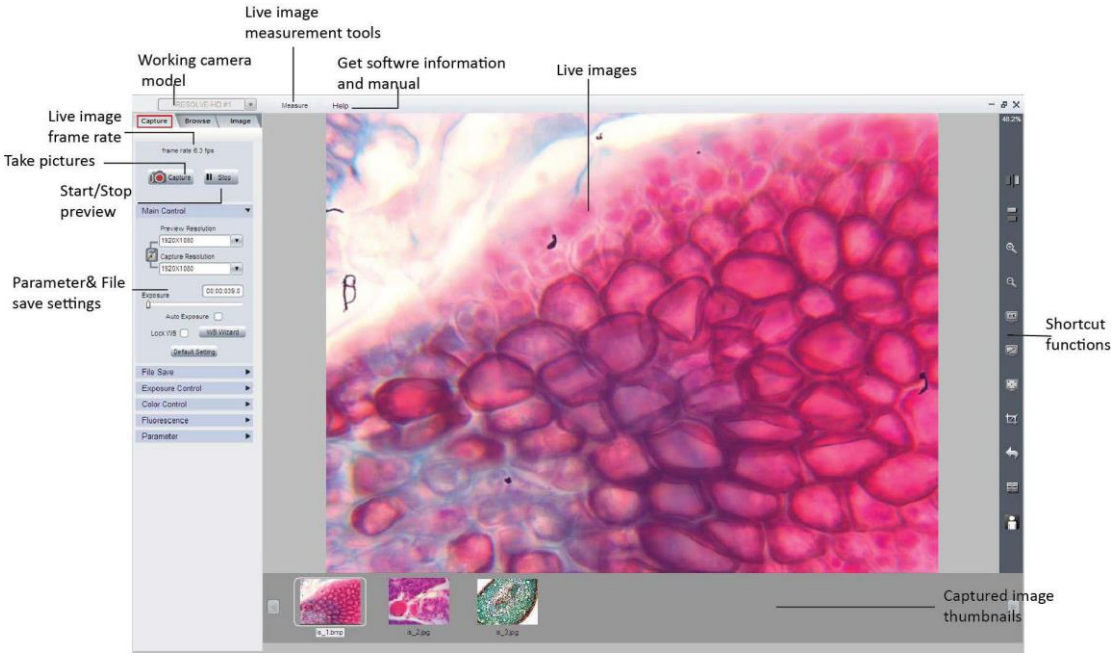


À chaque fois que l'on clique sur la touche Capture (Capturer) 

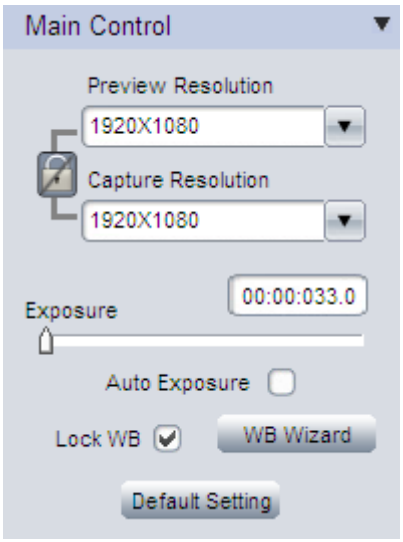
, la fenêtre d'enregistrement du fichier s'affichera pour demander à chaque fois le nom du fichier, le dossier et le format souhaité.

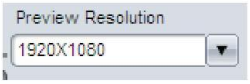
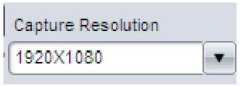
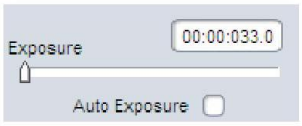
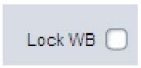
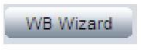
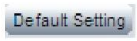
Chapitre 2 : Acquisition d'une image

Régler les paramètres de la caméra pour obtenir de bonnes images en direct, des mesures sur l'image et enregistrer des images et des vidéos.



Contrôles de base

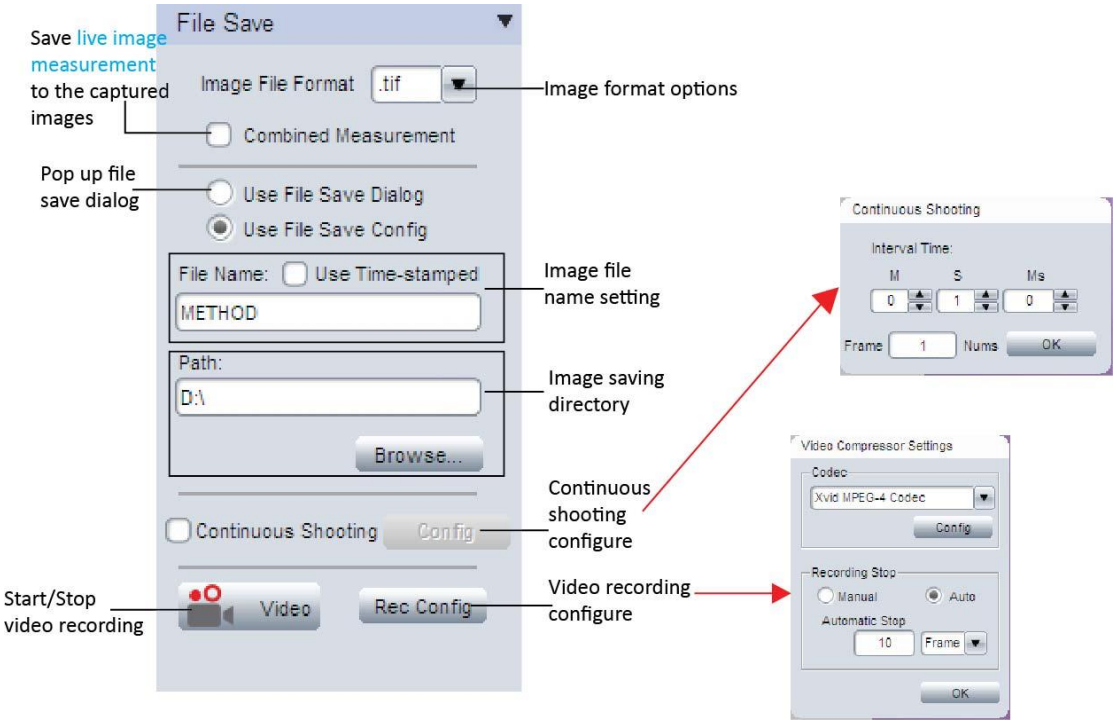


	Live image resolution	Select resolution for live image
	Captured image resolution	Select resolution for capturing
	Exposure Time	Change Exposure time to adjust image brightness. Auto Exposure mode will adjust proper brightness image automatically.
	Lock White Balance	Unchecked: Auto White Balance mode. Apply white balance calculation for every frame image. Checked: Lock the White Balance calculation result.
	White Balance Wizard	Wizard for getting better White Balance result.
	Default settings	Restore all the parameters to default value

Après avoir réglé la luminosité de l'image en direct, il est conseillé d’appliquer la balance des blancs pour corriger la couleur de l'image en direct. Pour obtenir les meilleurs résultats de balance des blancs, suivre les étapes suivantes :

1. Déplacer la lame avec l’échantillon sur une zone vide ;
2. Désélectionner [Lock WB] ;
3. Lorsque l’image est de la bonne couleur, sélectionner la case de verrouillage [Lock WB] ;
4. remettre la lame où il y a l’échantillon.

Capturer des images et des vidéos

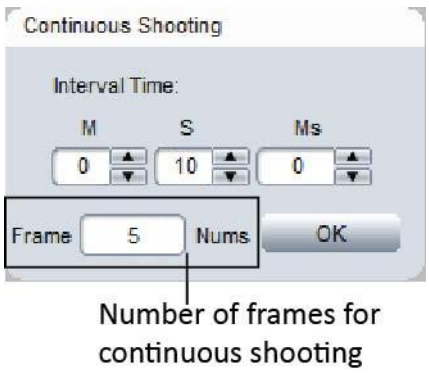


- Dans le menu déroulant [File Format], quatre formats de fichier sont disponibles : JPEG, BMP, TIFF et RAW.

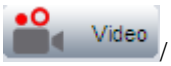
Les fichiers image au format RAW contiennent des données traitées au minimum par l'appareil photo. Il doit être lu par certains logiciels spéciaux (par exemple Photoshop, imagj etc.).

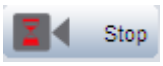
Continuous Shooting

- Cliquer sur la case **Continuous Shooting** [Mode Rafale] Continuous Shooting ; le logiciel enregistrera automatiquement une série d'images après avoir pris une seule photo.
- Cliquer sur [Config] pour définir le nombre d'images à capturer et l'intervalle de temps.



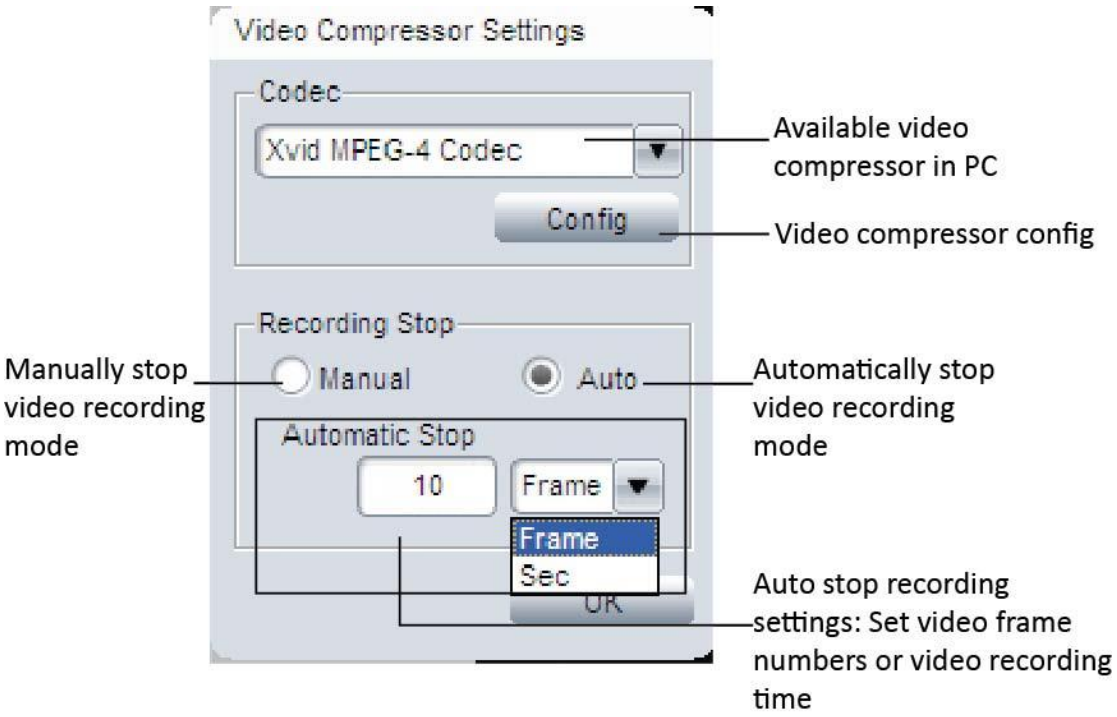
Enregistrement vidéo

Cliquer sur [Video] 

/ 

pour commencer/arrêter l'enregistrement de la vidéo.

Cliquer sur [Rec Config] pour ouvrir la fenêtre de configuration de l'enregistrement vidéo.



Il y a le mode [Manual] et [Auto] pour arrêter l'enregistrement.

- en mode [Manual], appuyer sur la touche [Video] pour démarrer et interrompre l'enregistrement.
- en mode [Auto], prédéfinir le nombre de photogrammes ou le temps d'enregistrement. Lorsqu'on appuie sur la touche [Video], le logiciel arrête l'enregistrement automatiquement après avoir enregistré le nombre prédéfini de photogrammes ou après le temps d'enregistrements préprogrammé.
- [Rec Config] >> [Codec] affiche la liste de tous les compresseurs vidéo disponibles sur l'ordinateur.

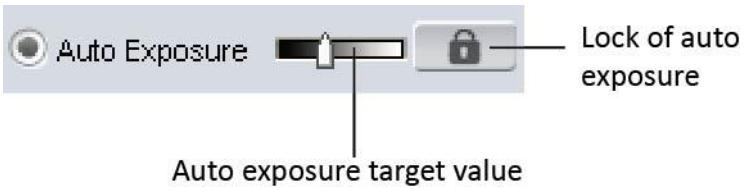
La vidéo enregistrée sans aucune compression sera de très grande taille. Le logiciel recherchera automatiquement les compresseurs vidéo installés sur l'ordinateur.

Contrôle de l’exposition

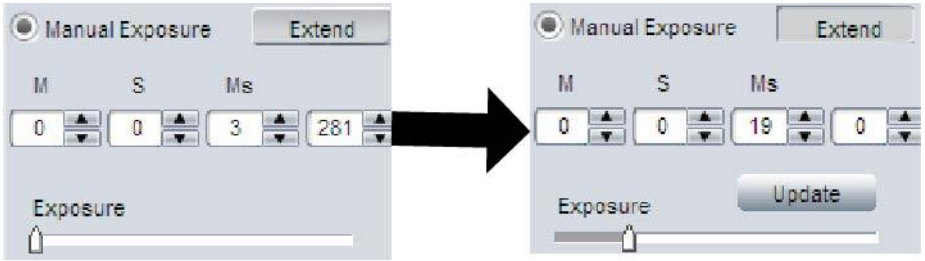
Modifier le temps d'exposition et le gain pour régler la luminosité de l'image. Sélectionner la vitesse des photogrammes (Frame speed) pour obtenir différents frame rate images pour l’image en direct. Régler la profondeur des données à 8-bit ou 16-bit pour les images capturées.

Auto Exposure

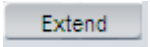
- Sélectionner la case [Auto Exposure] ; le logiciel commencera à régler automatiquement le temps d’exposition pour obtenir la bonne luminosité des images en direct.
- Auto exposure target value : permet de sélectionner le temps d’exposition de référence pour le réglage de l’exposition automatique.
- Lock : permet d’arrêter le calcul de l’exposition automatique.



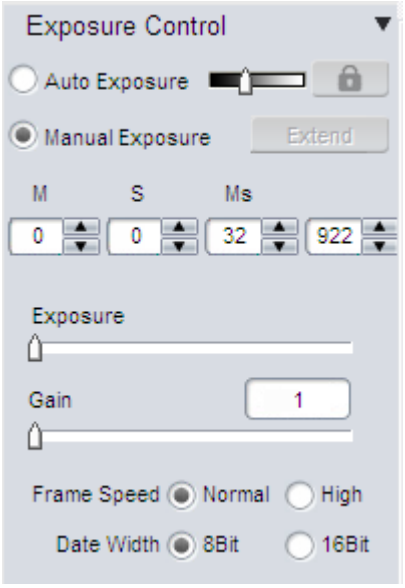
Manual Exposure



Permet de régler manuellement le temps d’exposition.

[Extend] 

est utilisé pour obtenir un temps d'exposition plus long. Cette fonction est disponible **uniquement** pour les caméras **CCD**. Pour les autres caméras, notamment pour l’appareil photo CMOS, le temps d’exposition maximum est inférieur à une seconde, donc [Extend] est désactivé.



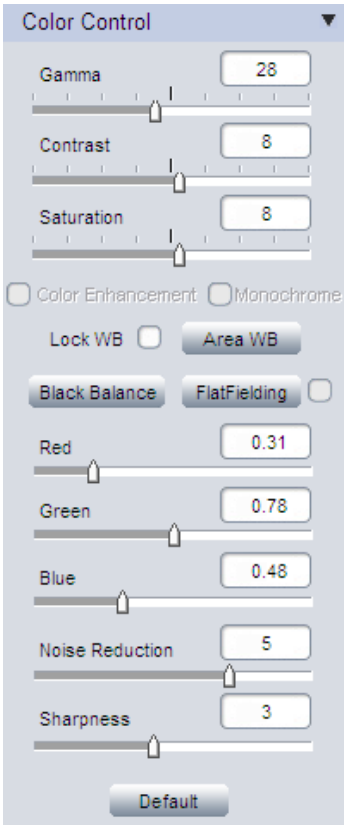
[Update] 

s’affiche après avoir sélectionné [Extend]. Cliquer sur cette touche pour arrêter le temps d'exposition précédent et redémarrer immédiatement le nouveau. Pour les applications avec de longues expositions, il est vivement conseillé d'utiliser [Update] pour démarrer un nouveau réglage. Cela permettra d’obtenir plus rapidement l'image avec la nouvelle exposition. Si le temps d'exposition est inférieur à 2-3 secondes, il n’est pas nécessaire de l'utiliser.

Gain, vitesse des images et profondeur des données (data Width)

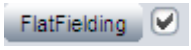
Gain		Increase the power of the image data. Higher gain gives brighter images, but also makes the noise signal more obvious.
Frame Speed	High Speed	Corresponding to high pixel clock. Gives faster frame rate.
	Normal Speed	Offer lower frame rate than High Speed, but gives longer maximum exposure time.
Data Width	8-bit	8-bit images use 2^8 = 256 gray levels to represent image details.
	16-bit	16-bit images use 2^16 gray levels to represent image details. ONLY available for CCD & Discovery series cameras in .Tiff and .Raw formats.

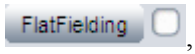
Contrôle de la couleur



Fonction Flat Fielding

La fonction Flat Fielding est utilisée pour corriger une luminosité non uniforme de l'arrière-plan de l'image.

- Cliquer sur [FlatFielding] 

pour lancer le calcul des paramètres d'uniformité de l'arrière-plan et les appliquer à l'image en direct.
- Lorsque la case est désélectionnée 

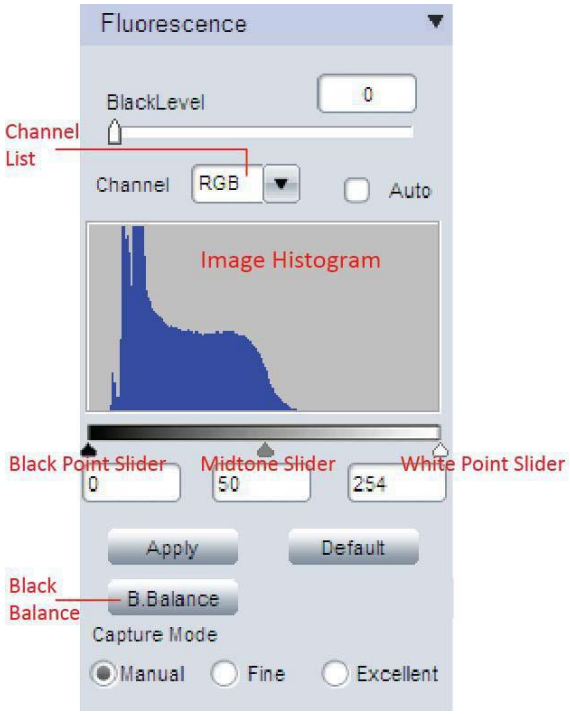
, les paramètres d'uniformité de l'arrière-plan ne sont pas appliqués à l'image en direct.

Pour obtenir un meilleur résultat en termes d'uniformité de l'arrière-plan, déplacer l'échantillon d'abord sur une zone vide, réappliquer le [FlatFielding], puis déplacer à nouveau l'échantillon.

Lorsque la lumière change, refaire le [FlatFielding] pour corriger la luminosité de l'arrière-plan non uniforme.

Paramètres pour la fluorescence

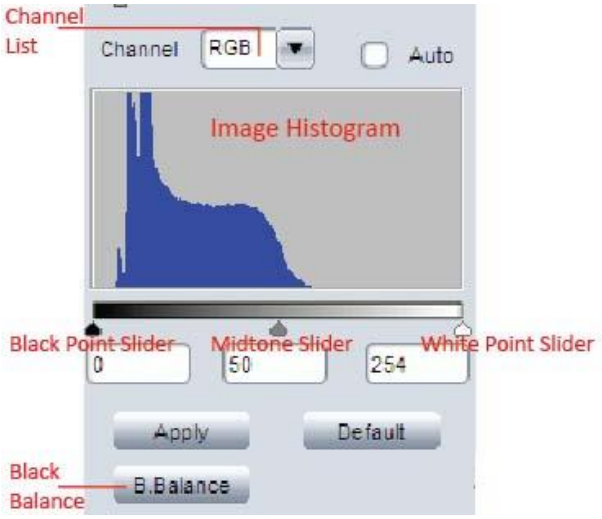
Dans le logiciel, il y a des paramètres utiles pour des applications avec fluorescence ou, en général, avec peu de lumière. Ils permettent d'obtenir de meilleures images plus facilement et plus rapidement.



Black Level

La fonction Black Level (niveau du noir) définit le niveau de luminosité dans la partie la plus sombre de l'image. Avec des images ayant une faible luminosité, elle permet de voir plus de détails dans les zones sombres.

Dans des applications avec une faible luminosité, un temps d'exposition assez long est généralement nécessaire pour obtenir de bonnes images. En définissant un long temps d'exposition au début, beaucoup de temps pourrait être nécessaire pour trouver l'échantillon à observer et obtenir une correcte (attendre le long temps d'exposition pour obtenir une nouvelle image, régler, puis attendre à nouveau ...). Au début, lors de la recherche de l'image à observer, il est conseillé de définir un temps d'exposition court et d'augmenter le Gain et le niveau du noir. Après avoir identifié l'image à observer, il est possible de réduire la valeur du gain et du niveau du noir, et donc d'augmenter le temps d'exposition. Cela permettra d'obtenir une meilleure et plus rapide acquisition de l'image.



Levels

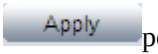
L'utilisation de l'outil levels (niveaux) permet de déplacer et prolonger les niveaux de luminosité dans l'histogramme en utilisant trois principaux composants : un point noir, un point blanc et le curseur des tons moyens.

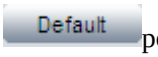
Channel List (Liste des canaux) : permet de choisir si modifier les canaux RGB ou l'un des trois canaux de couleur individuellement (rouge, vert et bleu).

[Auto] case à cocher : règle automatiquement les niveaux dans l'image en direct.

Réglage manuel des niveaux de l'image.

Déplacer le curseur du point blanc vers la gauche ; il est en mesure de révéler certaines informations dans la zone sombre. Si l'on déplace le curseur du point noir vers la droite, des informations seront révélées dans la zone lumineuse.

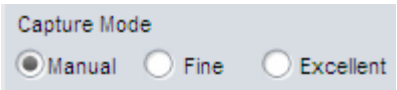
Après avoir réglé les niveaux, cliquer sur 

pour valider le réglage. Pour revenir à l'image originale, cliquer sur 

pour restaurer l'image.

[Black Balance] : Donne à la caméra une référence de « vrai noir ». Nécessaire UNIQUEMENT dans des applications de dark field (fond noir).

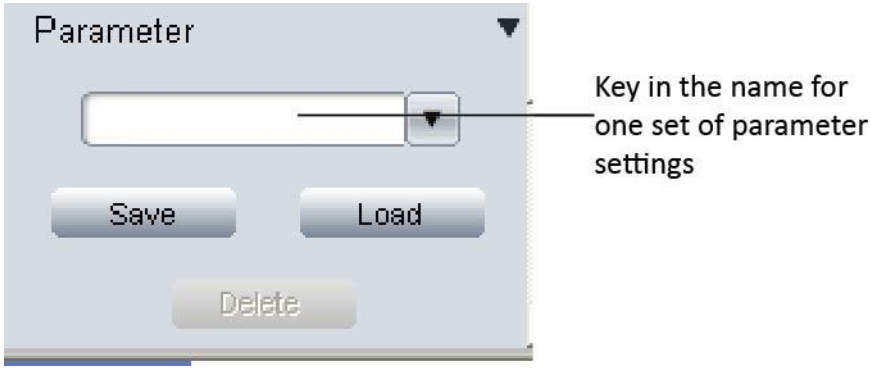
Capture Mode



Il existe trois modes de capture spécialement développés pour les applications en fluorescence.

Manual	Capture the image with current parameter settings
Fine	Automatically reduce the gain and extend the exposure to get the same brightness image. (Lower gain will give lower noise level images)
Excellent	Automatically save 10 images with current settings and then get an average image. (It needs to take a while to capture an image in this mode.)

Groupes de paramètres

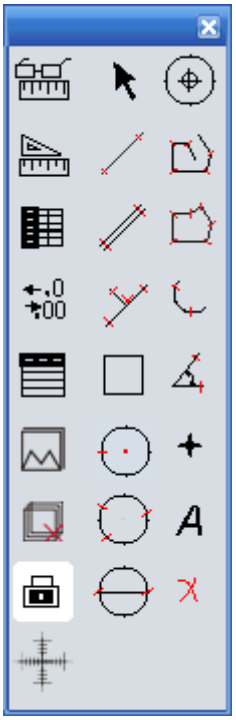


Enregistrer l’ensemble de paramètres pour les différentes applications. Les paramètres enregistrés comprennent le temps d'exposition, le gain, la vitesse des photogrammes, la profondeur des données, le gamma, le contraste, la saturation, l'état d'amélioration de la couleur, le noir et blanc, le gain RGB et le niveau du noir. Il est possible d’enregistrer jusqu’à 20 ensembles de paramètres.

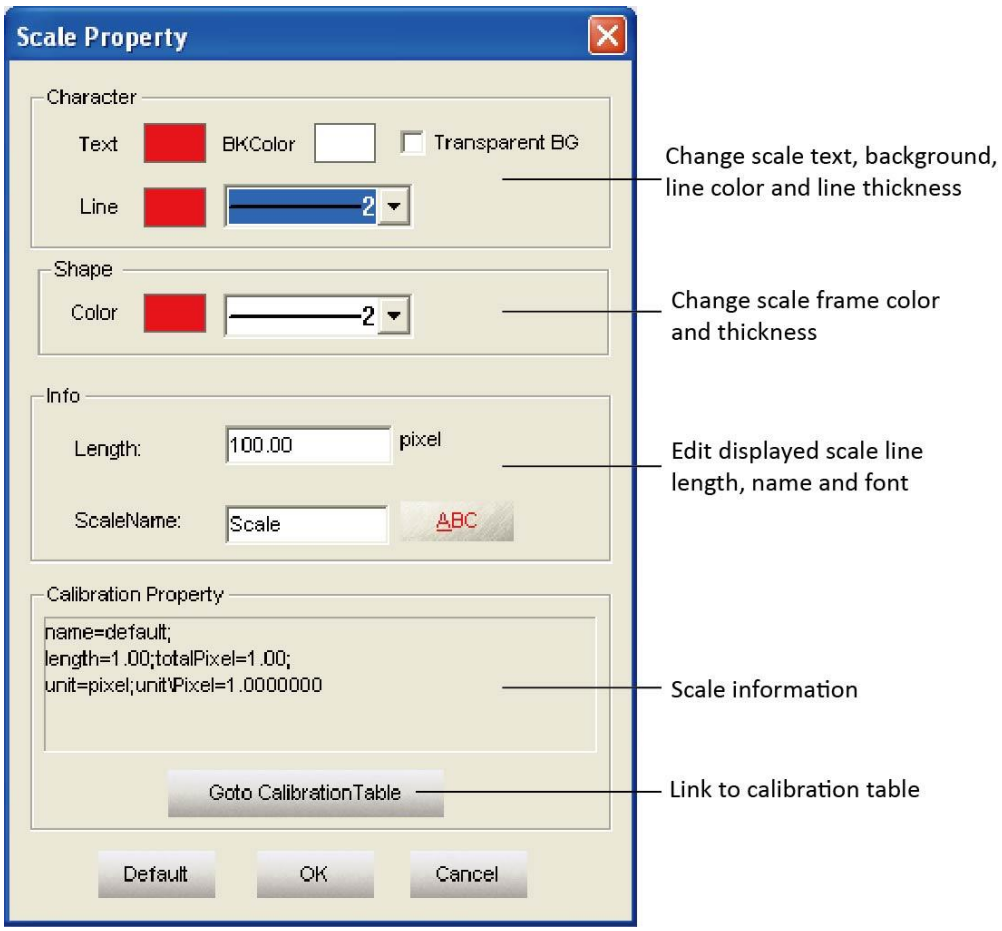
Chapitre 3 : Mesures sur des images en direct et acquises

Cliquer sur [Measure] en haut du logiciel pour afficher les outils de mesure.

	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
	Polyline	Measure polyline length.
	Polygon	Measure polygon area and perimeter.
	Arc	Measure a curve angle, radius and length.
	Angle	Measure the angle
	Count	Counter. Manually 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.



Modifier l'échelle des lignes



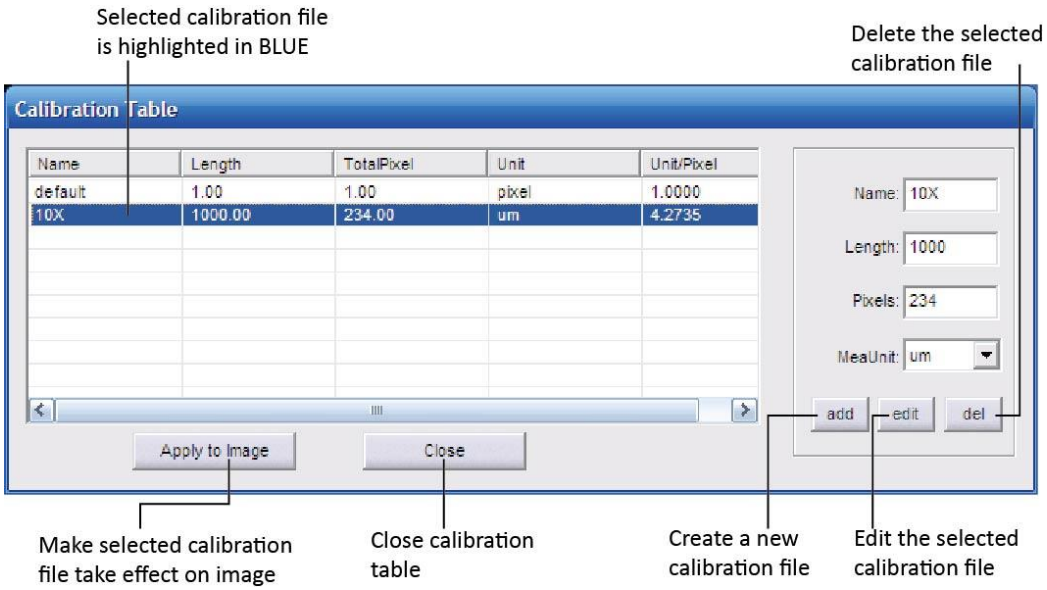
Cliquer deux fois sur l'échelle pour voir ses propriétés et les modifier si nécessaire.

Create Calibration File

Pour mesurer la mesure réelle des échantillons, il faut d'abord créer un tableau d'étalonnage correspondant.

Consulter l'Annexe 1 pour plus de détails sur l'étalonnage des mesures.

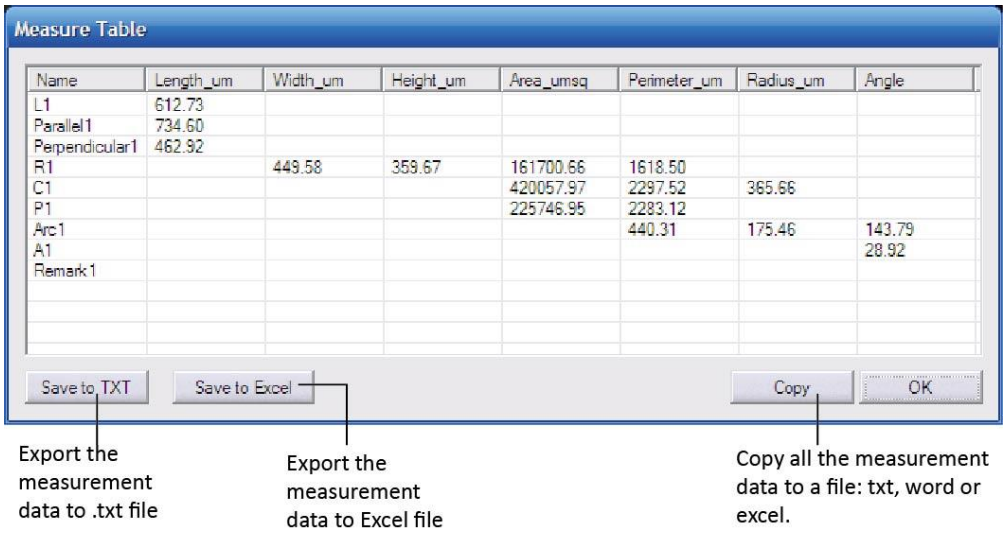
Calibration Table



- Cliquer sur  Calibrate Table [Tableau d’étalonnage] pour ouvrir le tableau d’étalonnage.
- Sélectionner le bon fichier d'étalonnage pour la bonne mesure sur l'image actuelle.

En utilisant le mauvais fichier d'étalonnage, on obtiendra un mauvais résultat de la mesure. Veiller à ce que le fichier d'étalonnage corresponde à l'image actuelle. Pour cette raison, il convient de nommer le fichier d'étalonnage avec les paramètres d’enregistrement ou au nom de l'objectif.

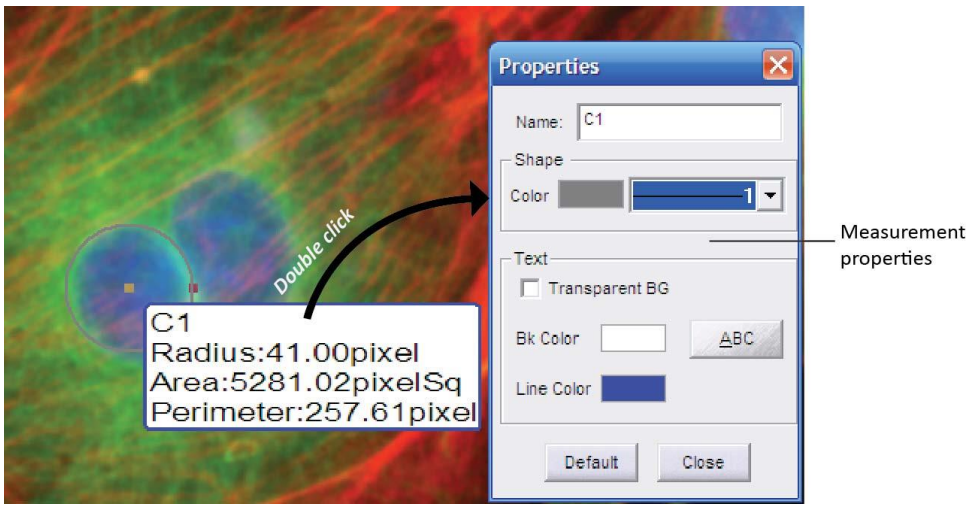
Measurement List



Toutes les mesures sont énumérées dans la Measurement List [Liste des mesures]. Le logiciel permet d'exporter les données de mesure sur un fichier TXT ou Excel.

Mesure

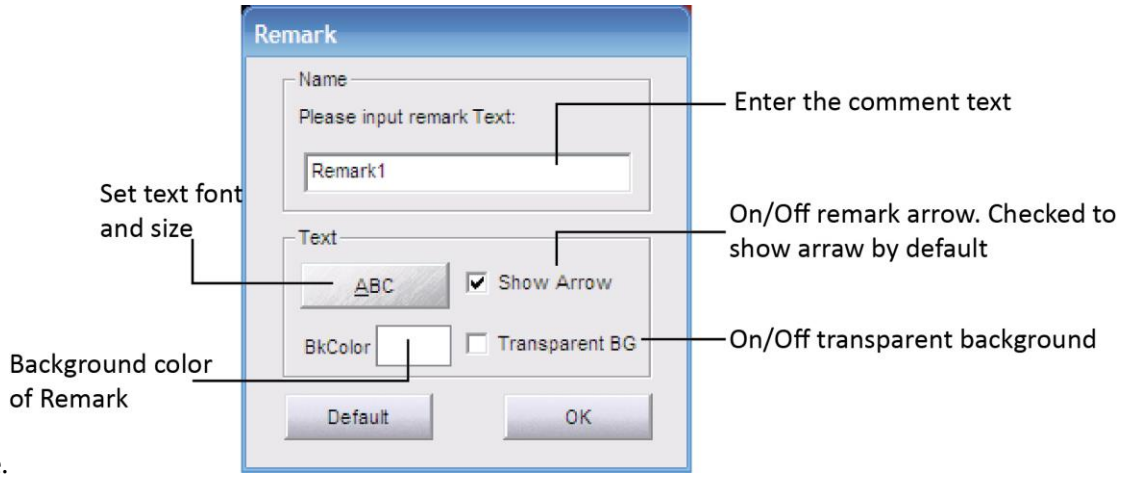
Le logiciel permet d'effectuer des mesures avec des lignes, des parallèles, des perpendiculaires, des rectangles, des cercles, des polygones, des arcs et de mesurer des angles. La fonction Count (comptage) permet de compter manuellement des objets. En outre, la fonction Annotate (Annotation) permet d’ajouter des commentaires sur les images.



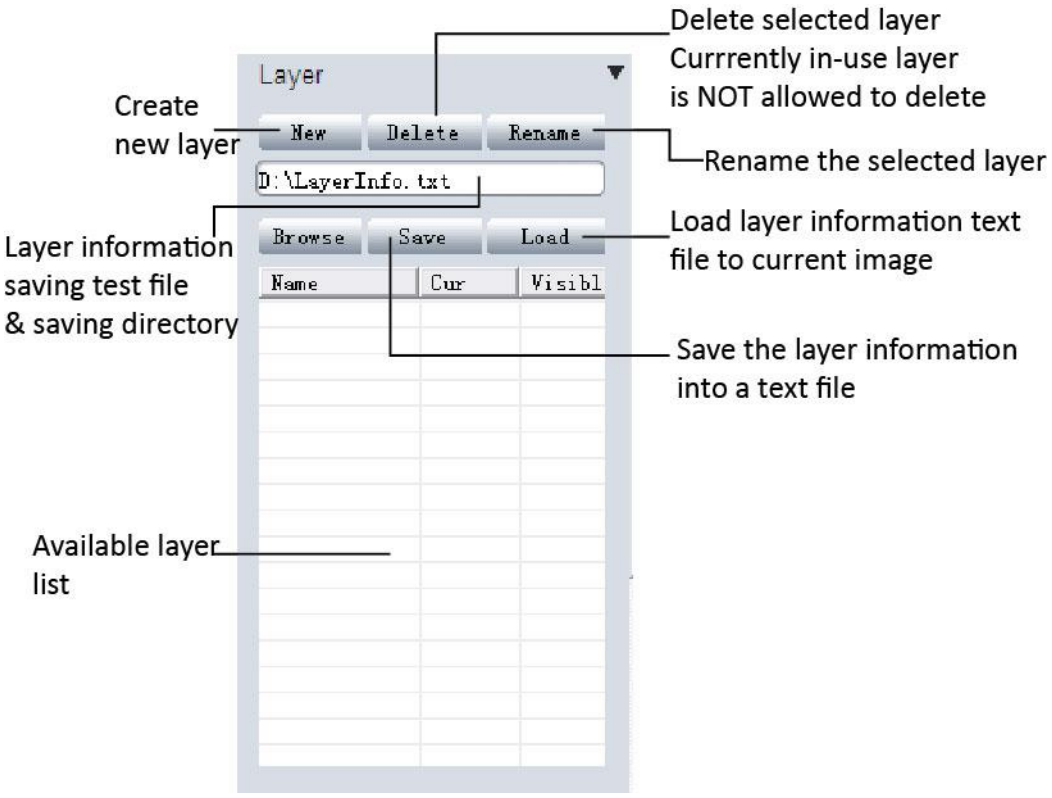
Double-cliquer sur les données de mesure pour afficher la fenêtre de mesure de configuration. Permet de modifier le nom des données, la couleur, l'épaisseur, la couleur de fond et la police.

Annoter

Sélectionner [Annotate] et cliquer sur la zone de l'image où l'on souhaite ajouter un commentaire.



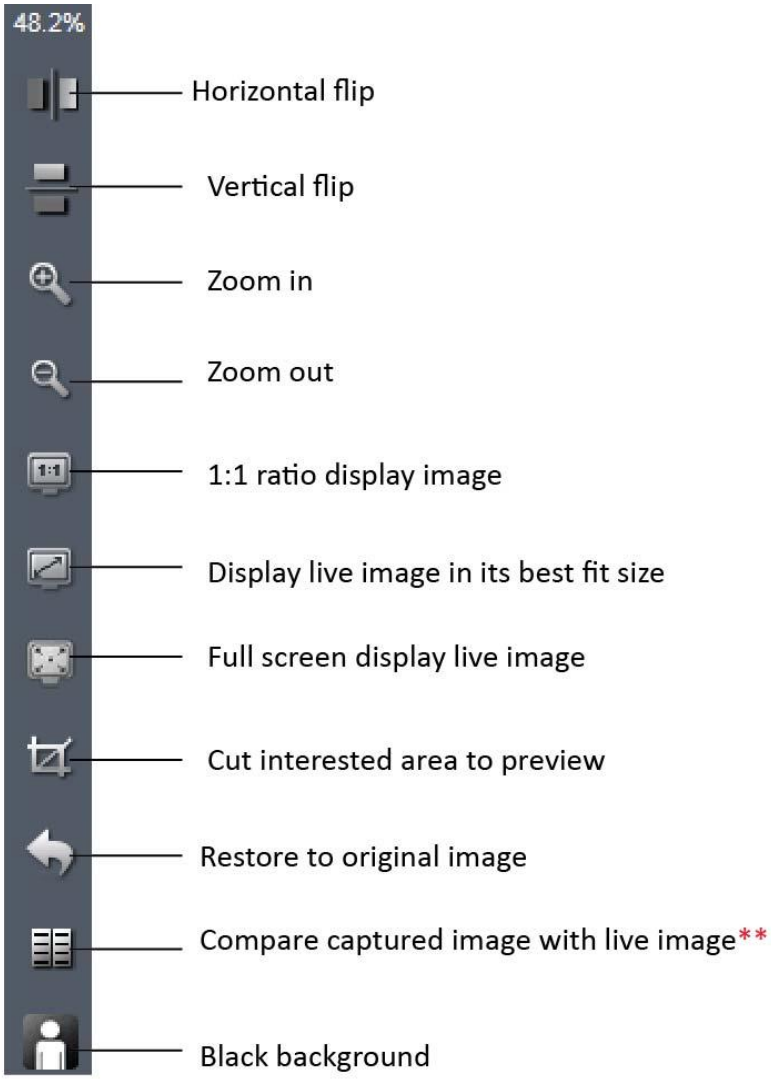
Niveaux



Lorsqu'il est nécessaire d'effectuer une grande quantité de mesures sur les images, certaines mesures pourraient se chevaucher, ce qui rendrait la mesure très difficile à effectuer. La fonction layer permet de créer plusieurs niveaux pour effectuer différentes mesures et facilitera l'ajout d'un grand nombre de mesures sur l'image. Consulter l'Annexe 2 pour plus de détails.

Liens rapides (image en direct)

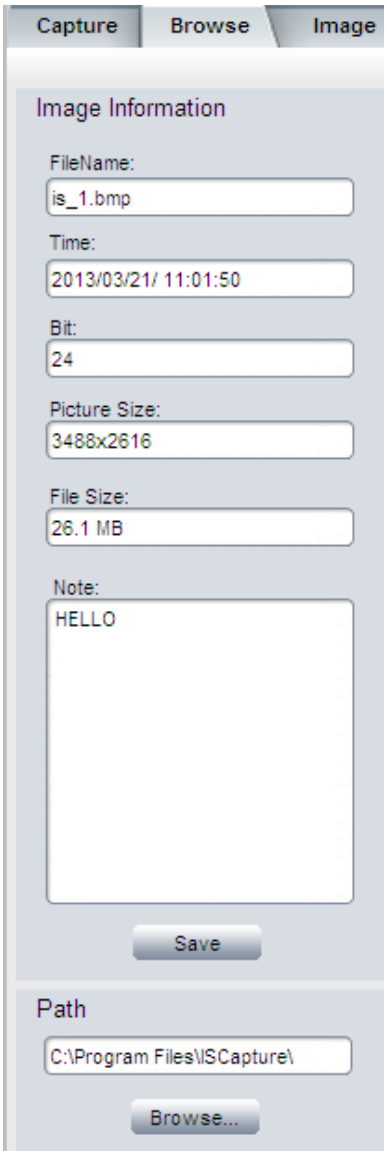
Sur le côté droit de la fenêtre de l'image en direct, il y a des liens rapides pour traiter rapidement l'image en direct.



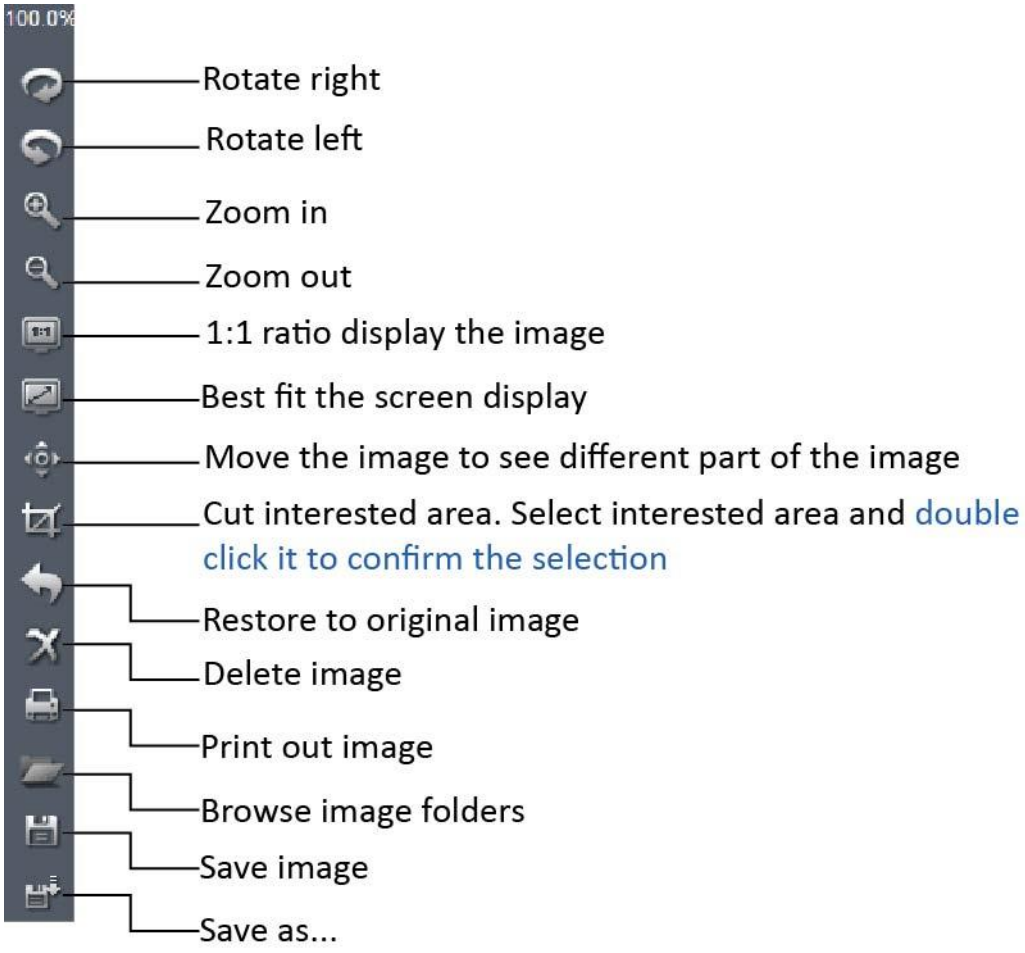
** Compare function: Live image will be displayed on the left side. Click on the taken image thumbnail to select it to compare with live images (Chosen compared image will be enhanced in gray-white frame).

Chapitre 4 : gestion de l’image

Afficher les images du panneau [Browse], le nom du fichier de l’image, le temps de capture, la profondeur de couleur (bit), la résolution et la taille de l’image. Il permet également d'ajouter des commentaires sur chaque image. Lorsqu’on affichera l’image plus tard, le logiciel montrera donc également le commentaire.

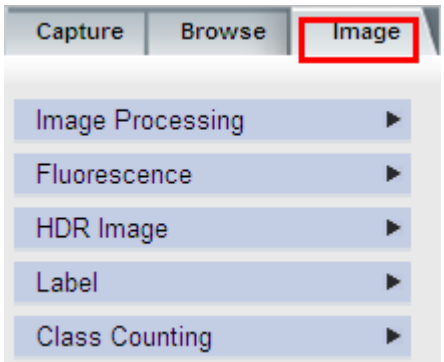


Le logiciel fournit certaines fonctions rapides sur le côté droit en mode ***Browse*** ou ***Image***.

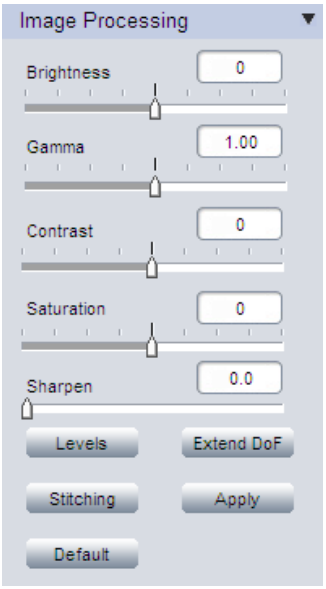


Chapitre 5 : traitement de l'image

Dans cette partie, le logiciel prévoit des fonctions avancées de traitement de l'image et permet d'effectuer des mesures sur les images acquises.



Traitement des images (Image processing)



Fournit des fonctions de base de traitement des images capturées et offre également des fonctions avancées supplémentaires comme extended Depth of Focus (profondeur de foyer étendue) and image stitching (assemblage d'images).

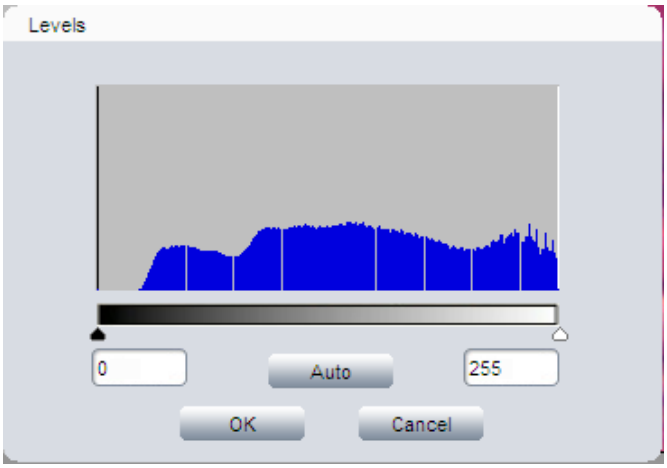
Brightness	Adjust captured image brightness. Default brightness = 0
Gamma	Adjust captured image gamma. Default gamma = 1.00
Contrast	Adjust contrast. Increase the contrast, the shadows become darker and the highlights brighter. Decrease the contrast, the highlights grow dim and the dark areas lighten up
Saturation	Adjust the color saturation. Fully-saturated colors are very bright, while low saturation are grayish.
Sharpen	Adjust the image sharpness. Sharpness is the contrast on the edges. Sharpening increases the bright and dark lines on edges.
Levels	Adjust image levels. Get more details in [Fluorescence]>>[Levels]
Extend DoF	Extend the Depth of Focus (DoF)
Stitching	Image stitching. Combine multiple images with overlapping fields of view to produce a segmented panorama or high-resolution image.
Default	Restore Brightness, Gamma, Saturation, Sharpen and levels back to the default value
Apply	Confirm to apply all the settings to the image.

Après avoir cliqué sur [Apply], tous les paramètres seront appliqués à l'image. NOTA BENE : une fois que cette option est choisie, il N'est PLUS possible de revenir à l'image originale.

Niveaux

Cliquer sur [Levels] 

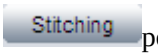
pour obtenir l'histogramme de l'image, permettant de régler les niveaux de l'image. Le réglage des niveaux est le même que celui sur l'image en direct. Plus de détails dans [Capture]-->> [Fluorescence].



Augmenter la profondeur de foyer

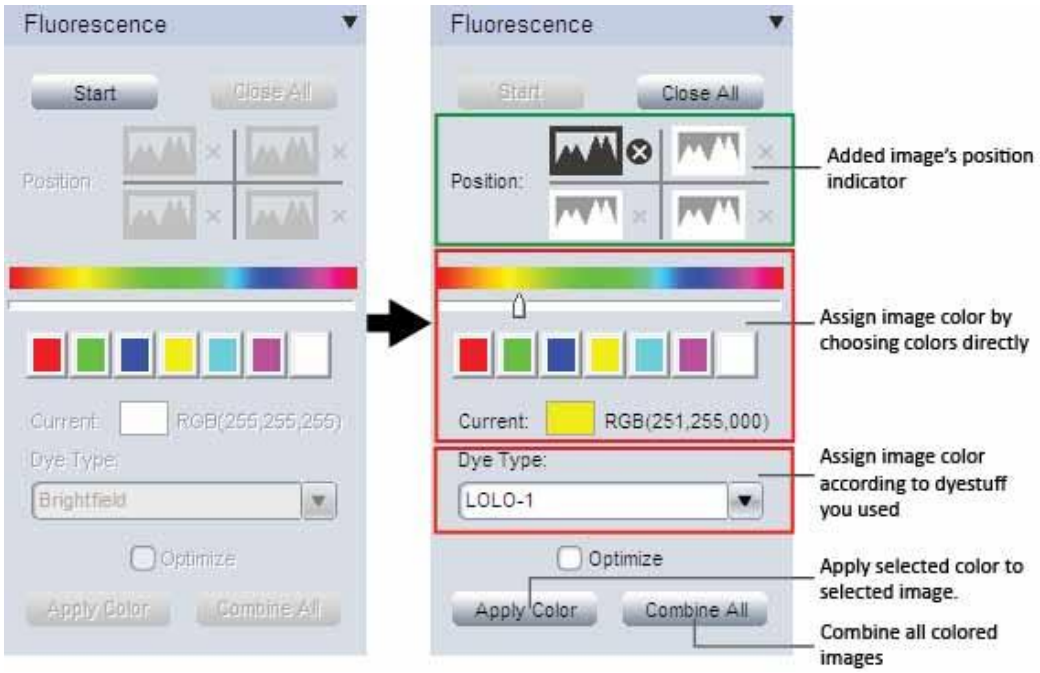
L'augmentation de la profondeur de foyer combine plusieurs images pour en créer une au point. Elle est utilisée pour augmenter la profondeur de foyer apparente d'une image. Consulter l'Annexe 3 : Fonctions avancées, pour plus de détails.

Assemblage d'images

Cliquer sur 

pour obtenir la configuration pour l'assemblage d'images. Cette fonction permet d'assembler plusieurs images avec des champs de vue qui se chevauchent pour produire une plus grande image (panorama) à haute résolution. Consulter l'Annexe 3 : Fonctions avancées, pour plus de détails.

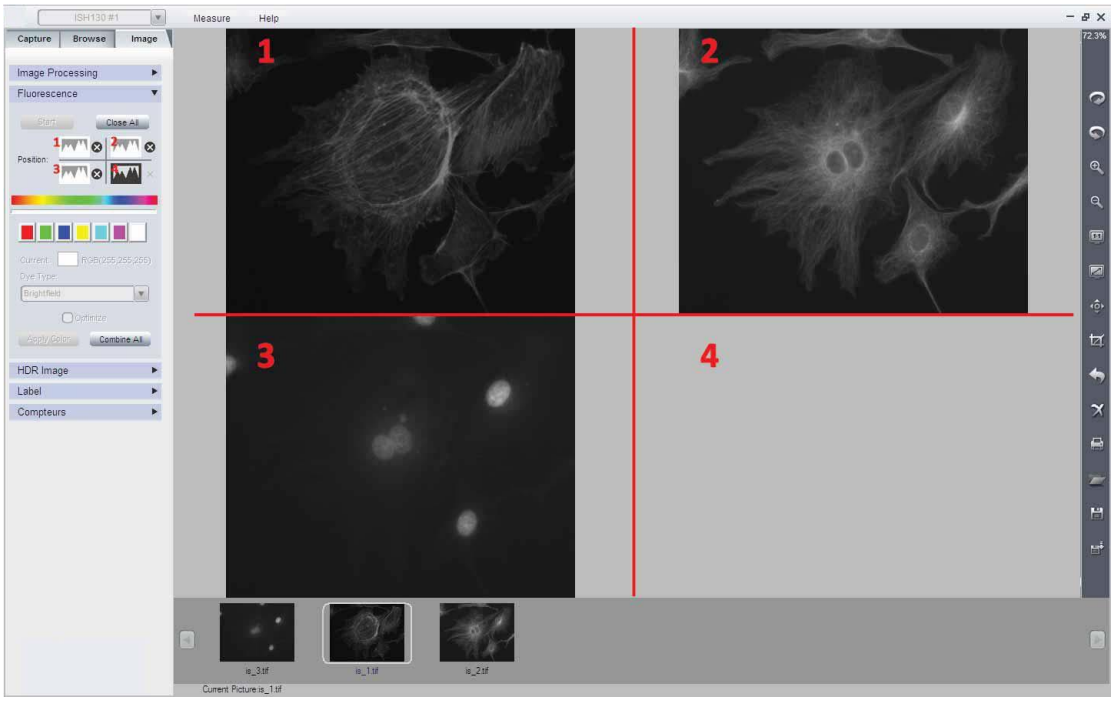
Fluorescence



Cette fonction est utilisée pour attribuer différentes couleurs à des images en fluorescence et les associer en une seule image.

Étape 1 : Ouvrir dans le logiciel les images qui doivent être assemblées, puis cliquer sur [Start] pour lancer l'assemblage.

Étape 2 : Cliquer sur les miniatures des images pour ajouter les images correspondantes. L'indicateur de position de l'image montre la position des images ajoutées. Quatre images au maximum peuvent être ajoutées pour l'association en fluorescence.



Étape 3 : Cliquer sur un indicateur de l'image pour commencer à appliquer la couleur pour celle-ci.

① Cliquer sur un indicateur sur l'image pour la sélectionner (l'indicateur sélectionné sera foncé et les indicateurs non sélectionnés seront en gris clair).

② Attribuer la couleur à l'image sélectionnée.

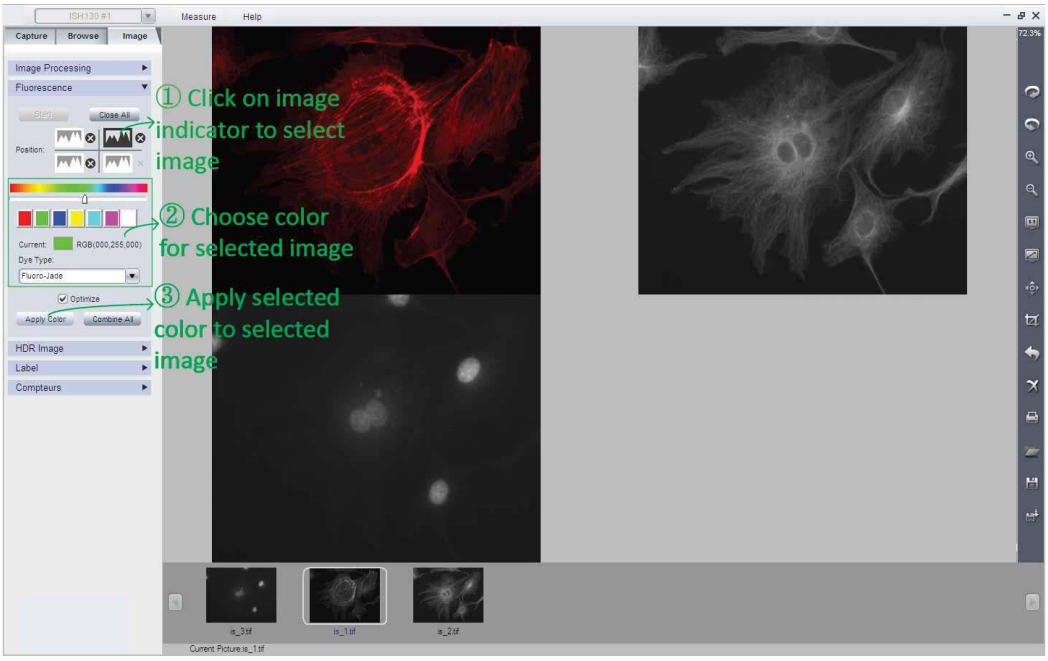
Il existe deux façons pour attribuer la couleur :

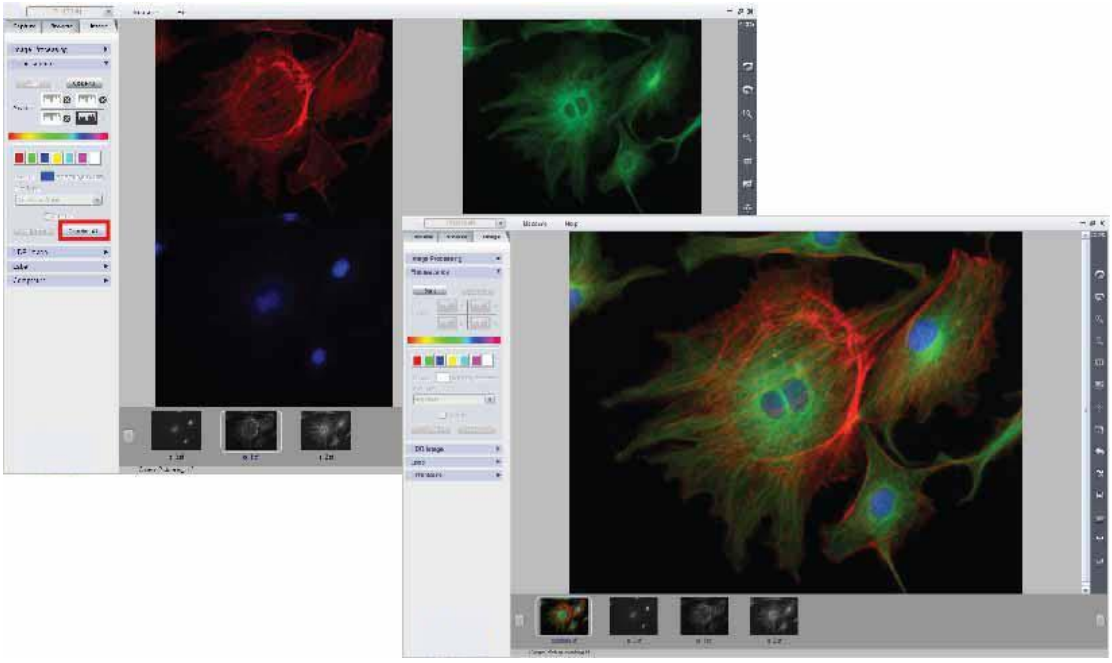
a. Cliquer sur la couleur préférée ou sur le curseur pour la choisir.

b. Attribuer la couleur selon le colorant de fluorescence à partir du menu déroulant [Dye Type].

③ Cliquer sur la touche Apply color (Appliquer la couleur) pour ajouter la couleur sélectionnée à l'image.

Étape 4 : Cliquer sur [Combine All] pour associer toutes les images colorées.





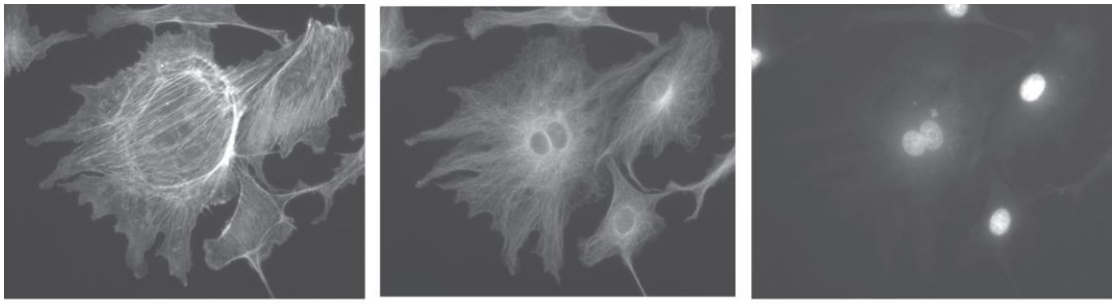
Il est conseillé Optimize de sélectionner la case Optimize pendant l'étape d'association. Cela permettra d'optimiser l'arrière-plan de l'image pour obtenir une meilleure image. Si cette fonction n'est pas sélectionnée, l'image qui sera créée contiendra toutes les informations originales. Aucun processus supplémentaire n'est appliqué aux données de l'image.

Après avoir créé l'image en fluorescence,

la fonction [Sharp] dans [Image Processing] permet d'avoir des images plus nettes et de voir plus de détails.

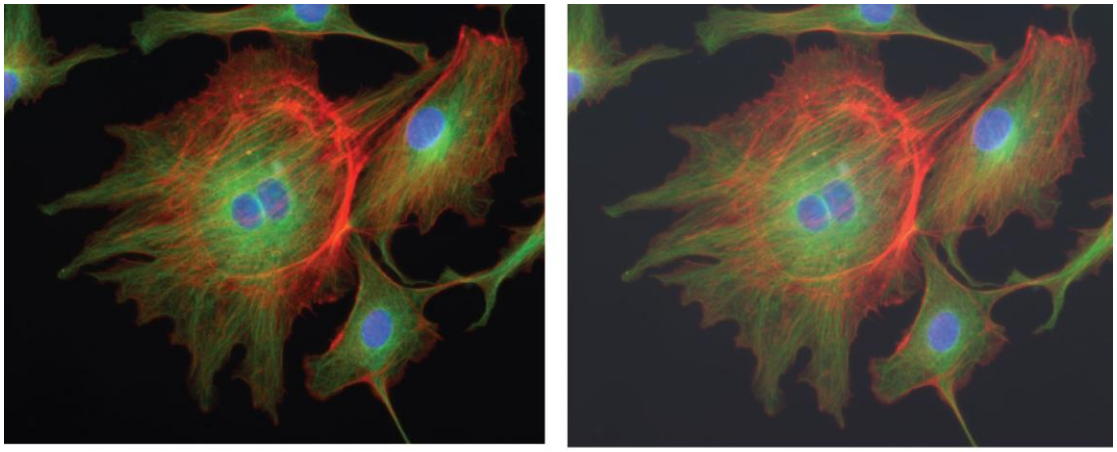
Si l'on se trompe d'image ou de couleur ajoutée à l'image sélectionnée, il suffit de cliquer sur la petite croix derrière chaque indicateur pour la supprimer. Pour supprimer l'association actuelle, il suffit de cliquer sur [Close All] pour supprimer l'association.

Images originales :



Original images

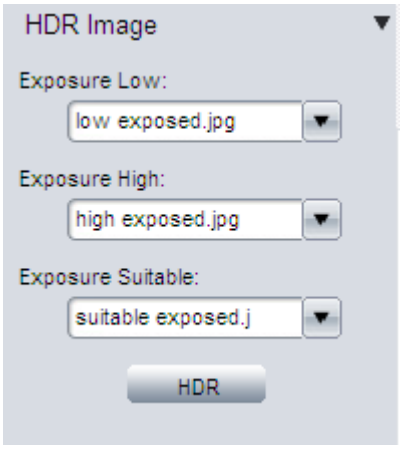
Image associée :



Combined image with optimization

Combined image without optimization

HDR Image

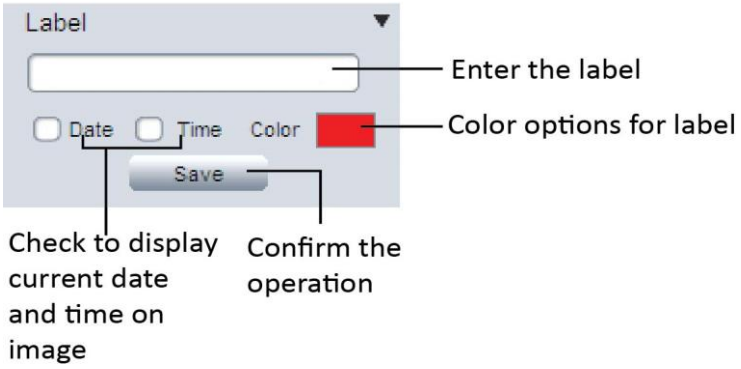


High Dynamic Range (HDR) est utilisé pour obtenir une plus grande gamme dynamique dans l'image.

- Prendre des photos de la même scène avec différents temps d'exposition et les charger dans le logiciel.
- Dans le menu déroulant, sélectionner les images correspondantes pour [Exposure Low], [Exposure High] et [Exposure Suitable].
- Appuyer sur [HDR] pour associer les images avec différentes expositions en une seule. L'image sera nommée "hdr_image".

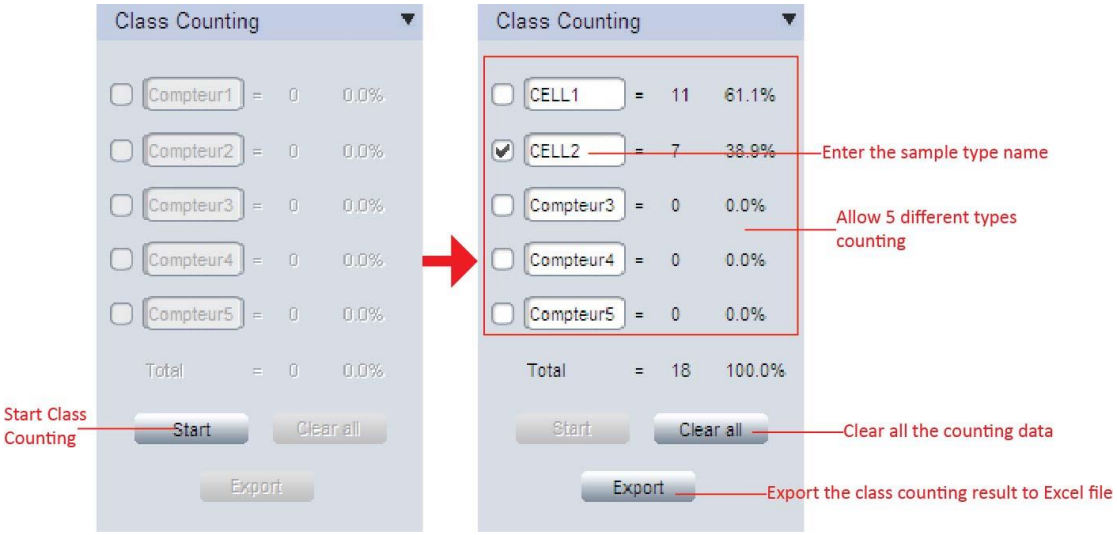
Si les images prises avec différentes expositions ne sont pas chargées dans le logiciel, le lien rapide  à droite de la fenêtre du logiciel permet de naviguer toute image simplement.

Étiquettes

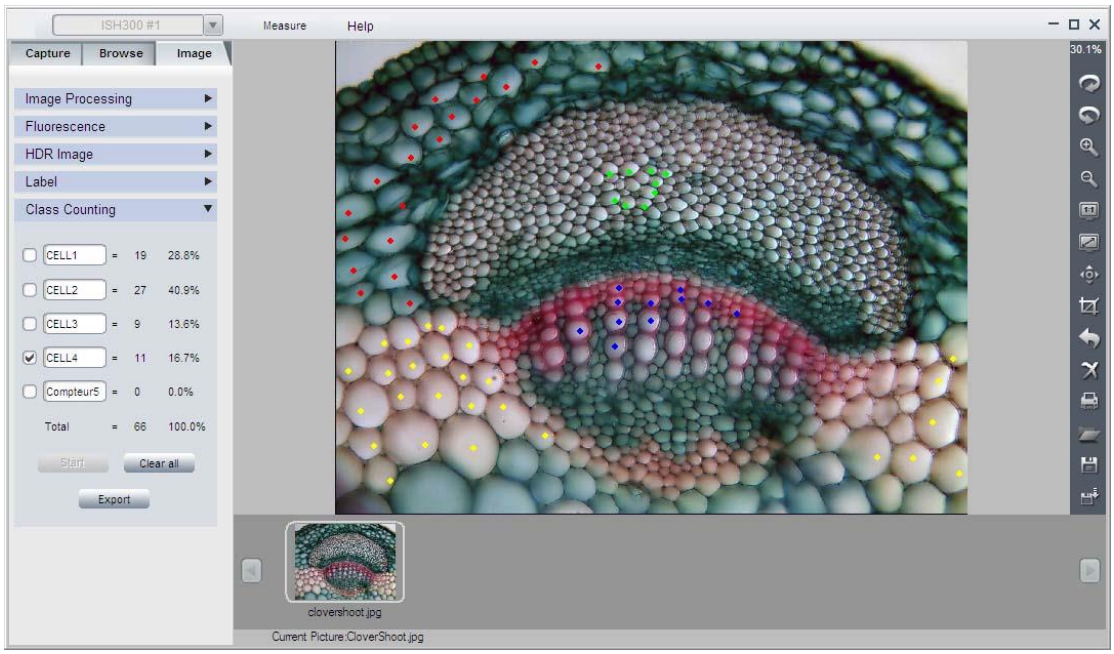


Permet d'ajouter du texte, l'heure et la date sur l'image. Cliquer sur [Save] pour enregistrer les étiquettes.

Comptage



La fonction de comptage permet de faire cinq différents types de comptages manuellement. Chaque type sera marqué par différents points colorés.

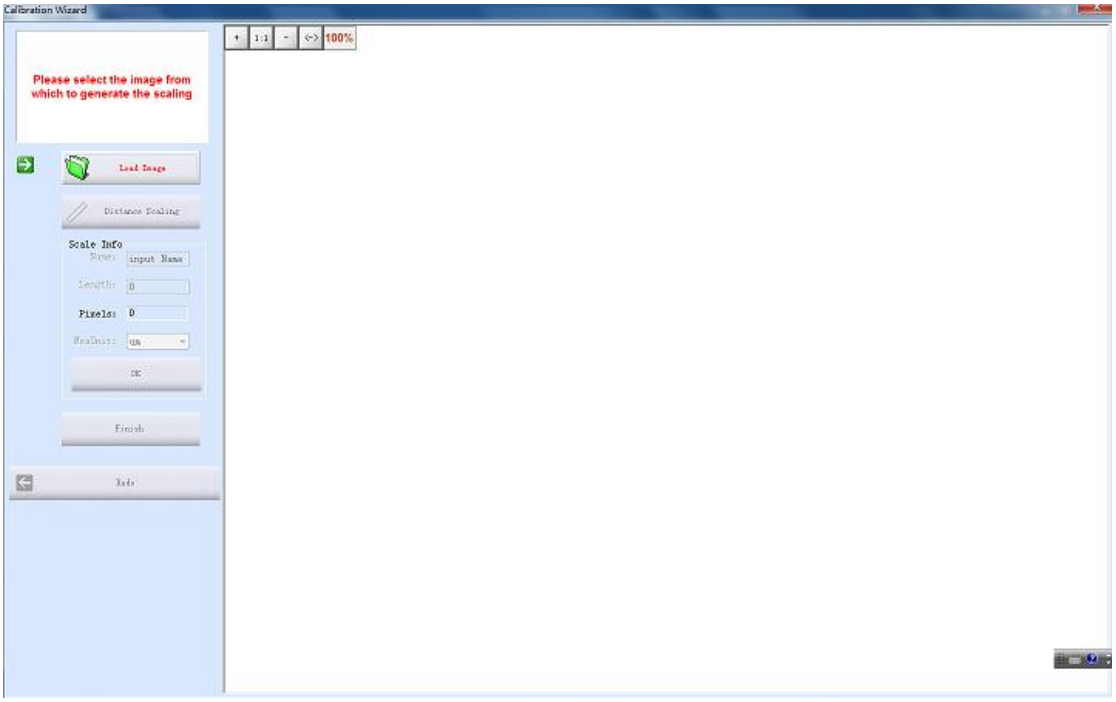


Annexe 1 : Comment créer un fichier d’étalonnage

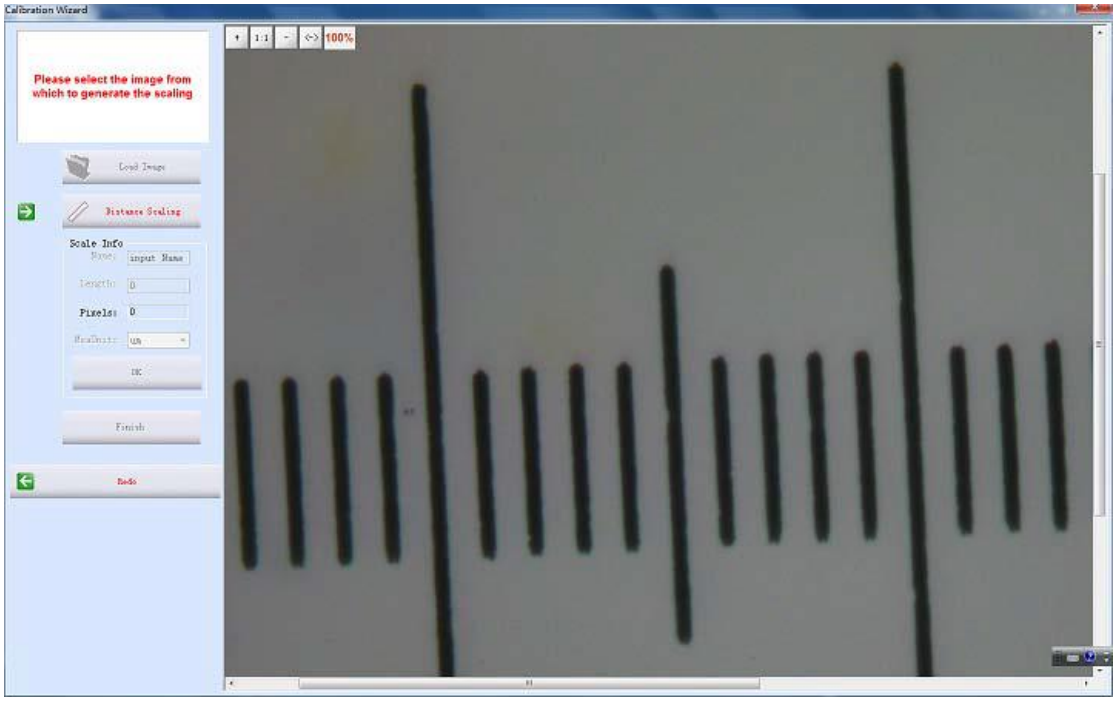
1. Capturer les images de la lame d'étalonnage avec tous les objectifs utilisés pour travailler (si même un verre de diminution est utilisé, il sera nécessaire de capturer l'image de la lame d’étalonnage avec ce verre de diminution inséré).

Si l’on n’utilise qu’un objectif et une résolution dans l'application, une seule photo de la lame d’étalonnage suffit. L'image de la lame d’étalonnage doit être capturée exactement avec le même objectif et les mêmes réglages du microscope qui seront ensuite utilisés pour observer la lame échantillon.

2. Cliquer sur pour commencer à créer le fichier d’étalonnage.

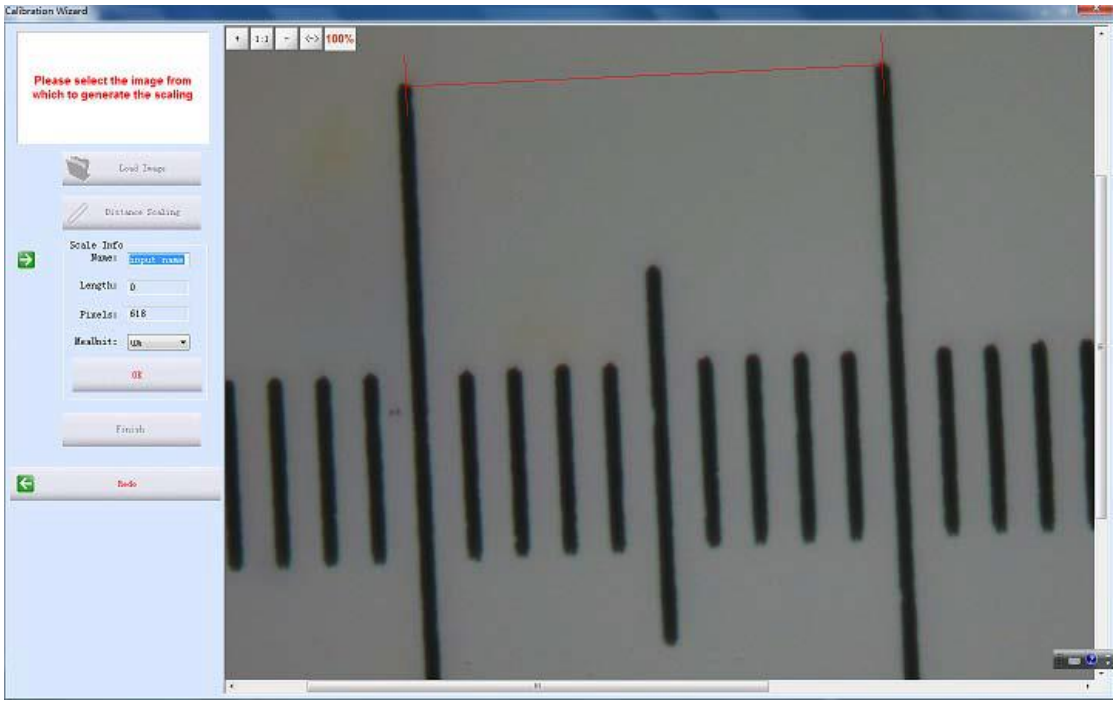


4. Cliquer sur [Load Image] pour charger la photo de la lame d’étalonnage prise à l’étape 1.



5. Cliquer sur [Distance scaling] et déplacer le curseur sur l'image de la lame, puis dessiner une ligne pour prendre la longueur de référence.

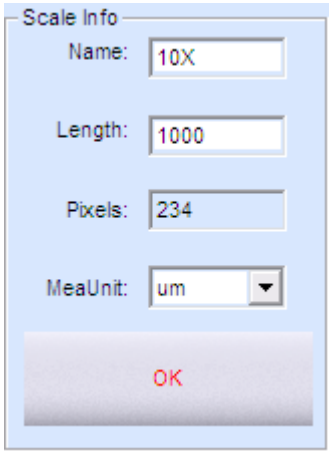
En utilisant une distance plus longue comme longueur de référence, les résultats de mesure seront plus précis. Par exemple, avec 10 unités d'échelle comme longueur de référence, on obtiendra des résultats plus précis par rapport à une utilisation avec une seule unité d'échelle.



5. Taper le nom du fichier d'étalonnage et la longueur de la ligne dessinée.

Si plus d'un fichier d'étalonnage est nécessaire, il est conseillé d'utiliser comme nom de fichier la référence « objectif + verre de diminution (le cas échéant) + résolution ». Cela permet de ne pas choisir un mauvais fichier d'étalonnage.

Lorsque vous tapez la longueur, veillez à faire attention à l'unité de l'échelle d'étalonnage de la lame et à l'unité de mesure utilisée. Par exemple, l'unité d'échelle d'étalonnage est 0,1 mm ; l'unité de mesure sélectionnée est µm (micron) et la longueur de référence qui a été dessinée est de 10 unités d'échelle. À ce stade, la longueur doit être 10 x 0,1mm x 1000 = 1000 µm.

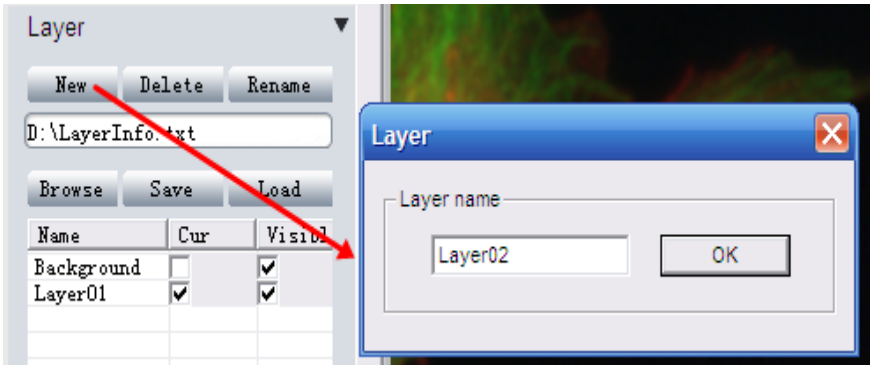


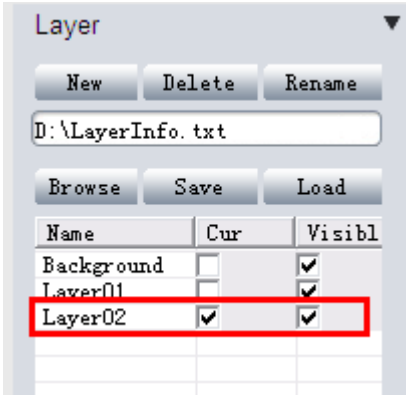
7. Cliquer sur [OK] pour valider l'étalonnage. Le nouveau fichier d'étalonnage dont le nom est « 10X », par exemple, est créé dans le Calibrate Table [Tableau d'étalonnage].

Annexe 2 : Utiliser les niveaux pour de grandes quantités de mesures

Lorsqu'il est nécessaire d'effectuer une grande quantité de mesures sur les images, certaines mesures pourraient se chevaucher, ce qui rendrait la mesure très difficile à effectuer. La fonction layer permet de créer plusieurs niveaux pour effectuer différentes mesures et facilitera l'ajout d'un grand nombre de mesures sur l'image.
Si des mesures ont déjà été effectuées sur l'image, la fonction **[Measure]-->[Layer]** créera automatiquement le « background » et le « Niveau01 » pour l'image actuelle.

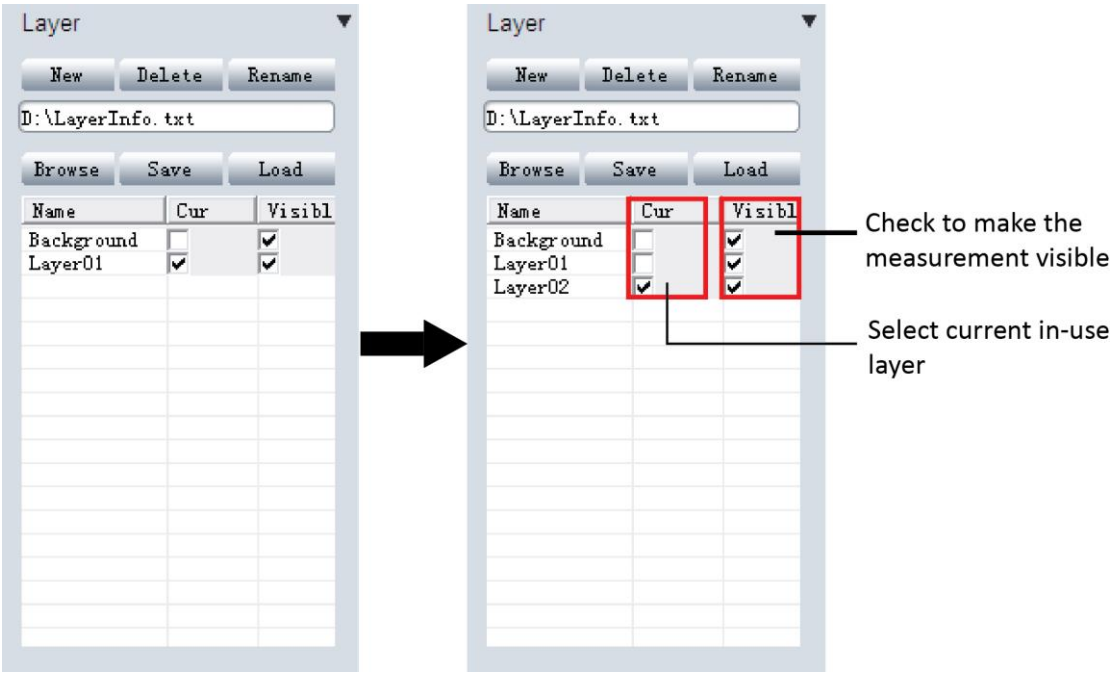
Cliquer sur [New] pour créer un nouveau niveau. Il est possible de renommer le nom du niveau. Par défaut, les noms « Layer02 », « Layer03 », etc. sont utilisés.

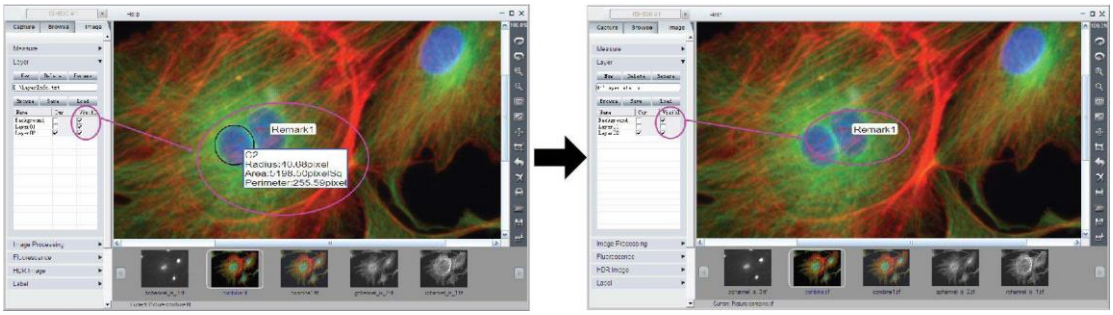




Maintenant, un certain nombre de mesures peuvent être appliquées sur différents niveaux. Il est possible de sélectionner quel niveau observer.

Si [Cur] est sélectionné, cela signifie que le niveau correspondant est actuellement affiché. Sélectionner un [Cur] différent pour passer d'un niveau à l'autre. Dans la colonne [Visible], la case sélectionnée indique que toutes les mesures dans les niveaux correspondants sont affichées même dans le niveau actuel. Désélectionner la case et la mesure correspondante sera invisible dans le niveau actuel.



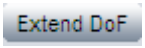


- Cliquer sur [Browse] pour choisir le dossier d'enregistrement du fichier et taper le nom du fichier. Cliquer ensuite sur [Save] pour enregistrer les informations du niveau actuel dans le fichier texte. Les informations du niveau seront enregistrées sous « LayerInfo.txt » par défaut.
- Cliquer sur [Browse] pour trouver le fichier d'informations d'une couche. Cliquer sur [Load] pour charger les informations du niveau dans l'image actuelle.

Annexe 3 : fonctions avancées

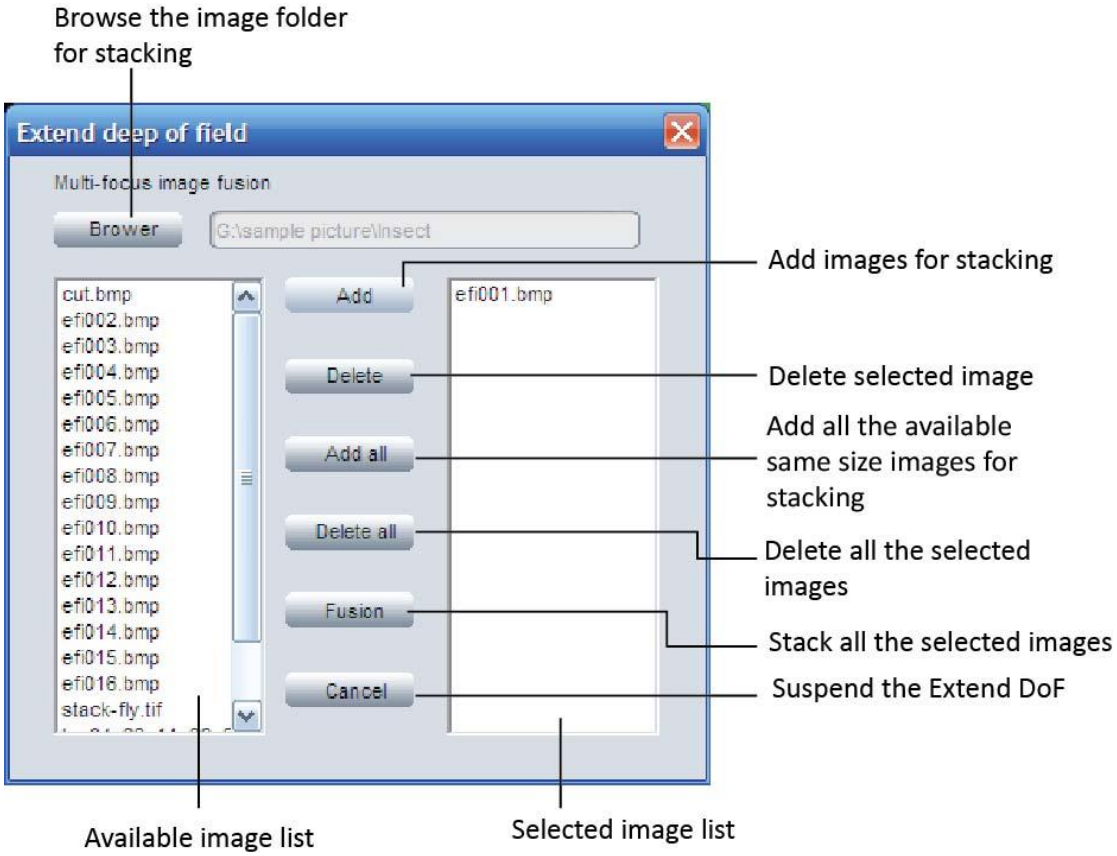
Extend depth of focus

L'augmentation de la profondeur de foyer permet de combiner plusieurs images pour en créer une au point. Elle est utilisée pour augmenter la profondeur de foyer apparente d'une image.

Appuyer sur Extend DoF (Étendre DOF) 

pour afficher la fenêtre de dialogue ci-dessous.

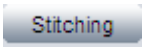
Sélectionner les images correspondantes et appliquer la fonction.



- Parcourir le dossier où se trouvent les images à associer.
- Toutes les images contenues dans le dossier seront répertoriées sur le côté gauche. Cliquer sur une image ; l'image sera mise en évidence en bleu.
- Cliquer sur [Add] pour ajouter l'image mise en évidence sur le côté droit (ce seront les images initiales à utiliser pour l'association).
- La touche Add all (Ajouter tout) permet d'ajouter toutes les images ayant la même taille sur le côté gauche en tant qu'images initiales sur le côté droit en un seul clic.
- Cliquer sur [Fusion] pour empiler toutes les images source sélectionnées et obtenir une image avec une profondeur de champ étendue.


Si la mauvaise image est sélectionnée comme source pour l'union, il suffit de cliquer sur celle-ci et sur [Delete] pour la supprimer. [Delete all] supprimera toutes les images sélectionnées.

Image stitching

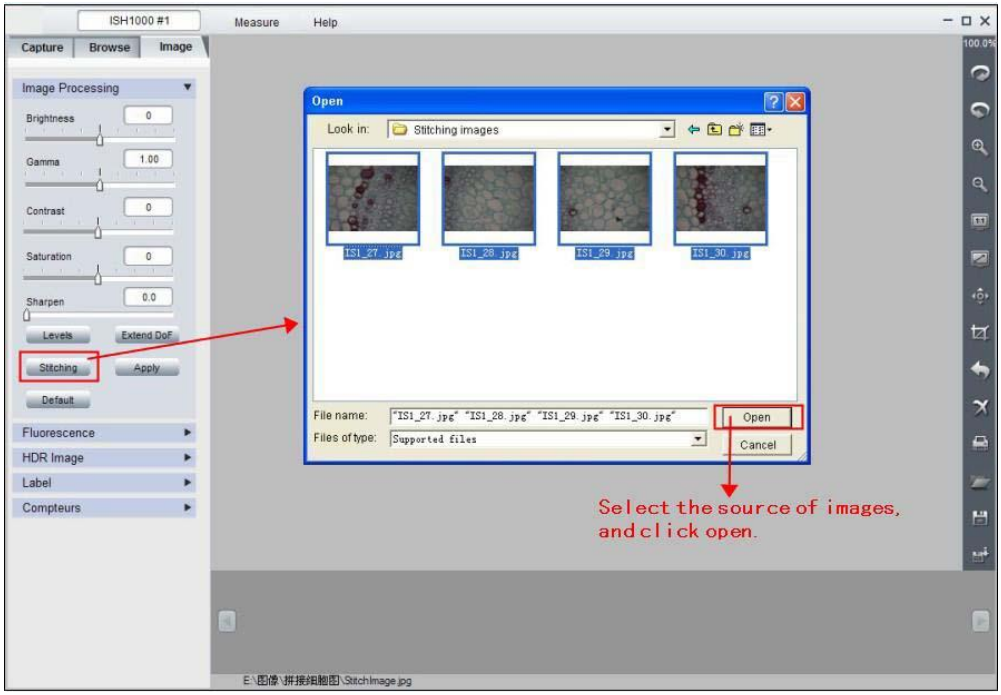
Cliquer sur 

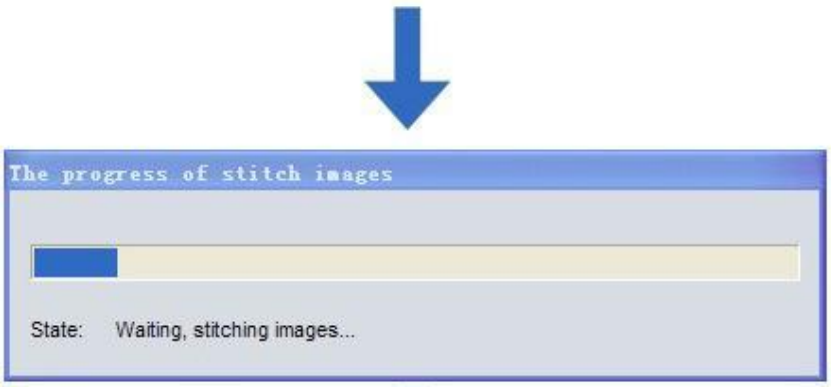
pour afficher la configuration pour assembler les images. Cette fonction permet d'assembler plusieurs images avec des champs de vue superposables pour créer une image panoramique plus grande ou une image à haute résolution.

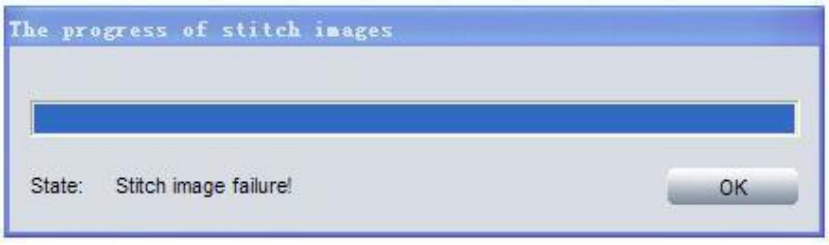
1) Cliquer sur [Open] pour afficher les images initiales pour l'association. Sélectionner toutes les images initiales et les ouvrir.

2) Cliquer sur [Stitching] pour commencer à associer toutes les images initiales.

3) Cliquer sur [Save] pour enregistrer l'image union dans le même dossier que les images initiales avec la date et l'heure.







Si la source de l’image ne satisfait pas aux conditions, un message d'erreur s’affichera dans l'opération d’association.

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Packungsinhalt

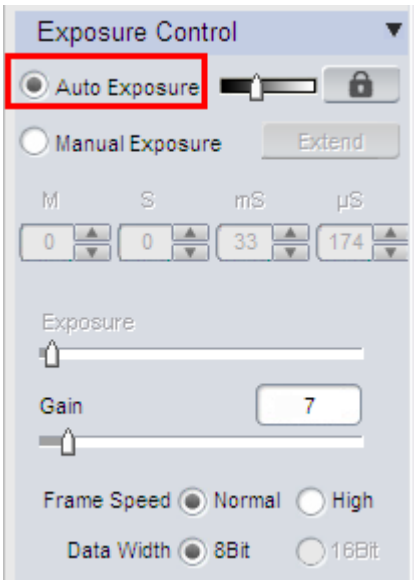
Beschreibung	ECN#	Stück
CD-ROM mit Software		1

Empfohlene Systemvoraussetzungen

- IBM PC kompatibel: Windows7 / 8 / 10 (32&64 bit)
- RAM: 512 MB , HDD: mindestens 250GB
- USB 2.0 Schnittstelle
- CD-ROM Laufwerk (zum Installieren der Treiber und der Software)

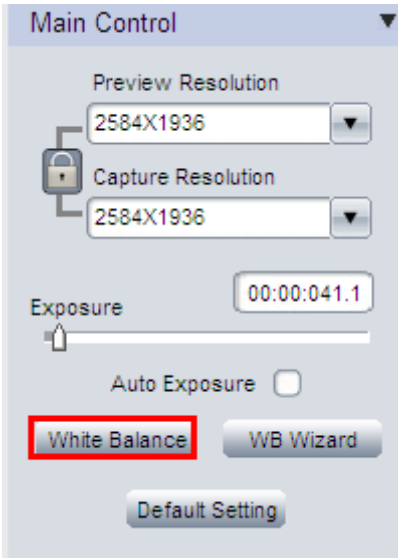
Einstellungen der IS VisiCam Image Analysis

1. Stellen Sie **Auto Exposure** (automatische Belichtung) ein. Beachten Sie die Vorschau und regulieren Sie das Mikroskop (oder das Objektiv), um das Bild scharf zu stellen.
Normalerweise kann die automatische Belichtungsfunktion eine Vorschau mit einer korrekten Helligkeit erhalten. Stellen Sie, wenn die Vorschau noch dunkel erscheint, die **Gain** (Verstärkung) in der Mitte des Cursors ein.



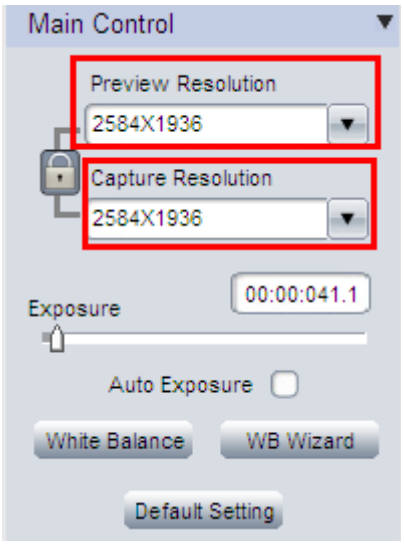
Bringen Sie, wenn man eine scharfe Vorschau erhält, die **Gain** auf den Anfangswert, gehen Sie auf den manuellen Belichtungsmodus über und verlängern Sie die Belichtungszeit manuell, bis Sie Bilder mit korrekter Helligkeit erhalten.
2. Klicken Sie auf die Taste des **White Balance** (Weißabgleichs), um die Farbe der Bilder zu korrigieren.

Sie werden gebeten, um einen besseren Weißabgleich zu erhalten, den Objektträger auf einen leeren Bereich zu bringen und anschließend die Taste des **White Balance** zu drücken. Schieben Sie anschließend den Objektträger mit der Probe zurück. Alternativ können Sie **WB wizard** (angeleitetes Verfahren) drücken und die Anweisungen befolgen, um den Weißabgleich zu vervollständigen.



3. Abändern der Auflösung für die Vorschau und Aufnehmen von Bildern mit unterschiedlichen Auflösungen.

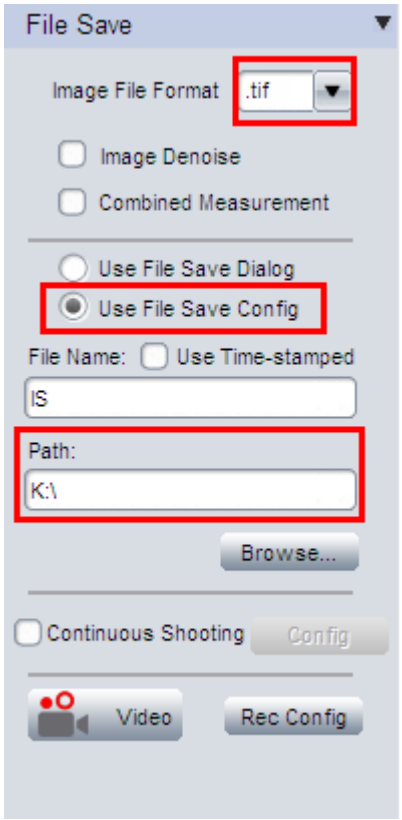
Klicken Sie auf das Sperrsymbol , um die Auflösung der Vorschau und Aufnahme zu sperren / freizugeben. Durch die Freigabe wird die Einstellung verschiedener Auflösungen der Vorschau und Aufnahme ermöglicht (gewöhnlich verwendet man eine niedrige Auflösung für die Vorschau und eine hohe Auflösung für die Aufnahme).

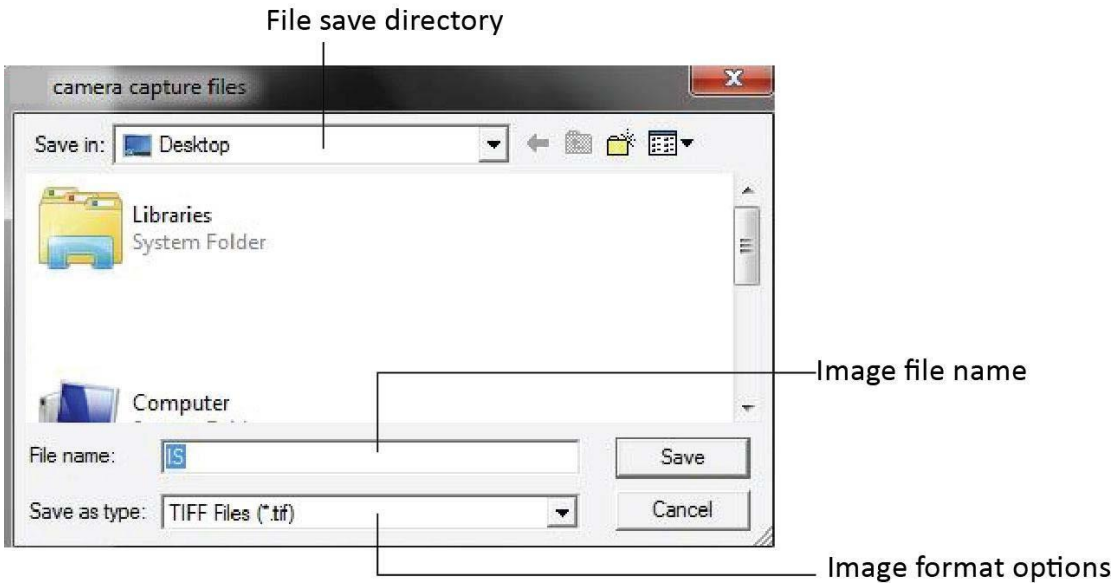


4. Wählen Sie das Paneel **File Save** (Datei speichern), um das Speicherformat, das Verzeichnis und den Dateinamen auszuwählen.

a. Wählen Sie **Use File Save Config**, um das Bildaufnahmeformat, das Verzeichnis und den Dateinamen voreinzustellen.

b. Wählen Sie **Use File Save Dialog**, um zu erreichen, dass ein Pop-up-Fenster erscheint, um das Bildaufnahmeformat, das Verzeichnis, wohin man speichern möchte und den Dateinamen einzustellen.



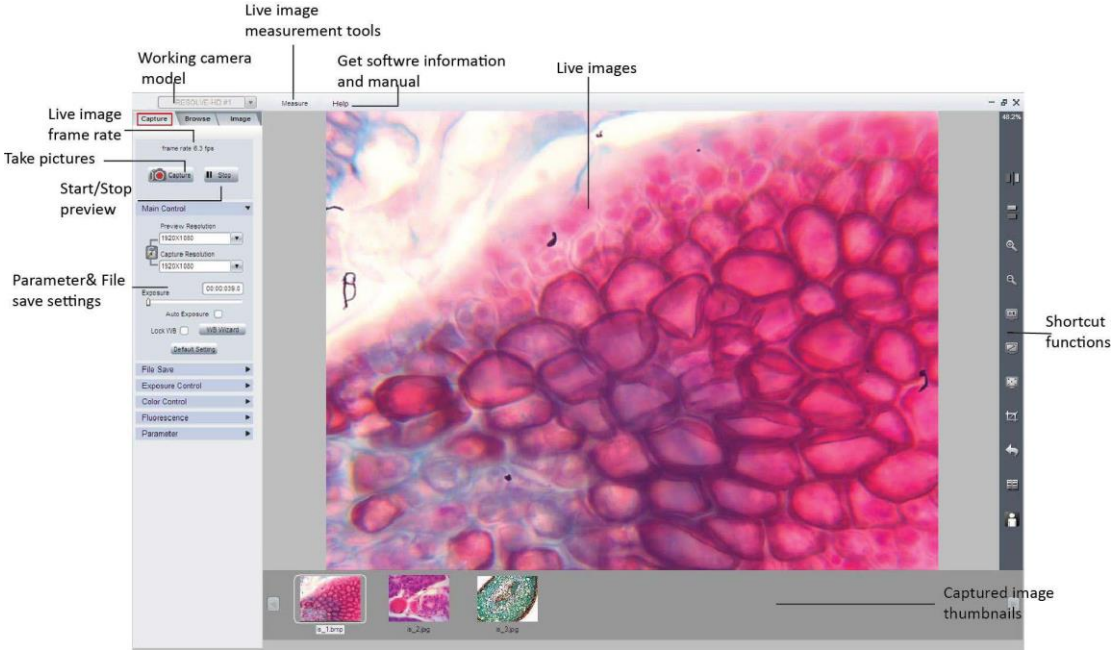


Jedes Mal, wenn man auf die Schaltfläche Capture (Aufnahme) 

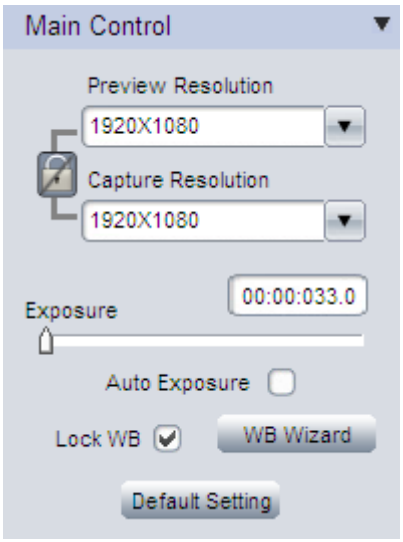
drückt, erscheint das Fenster zum Speichern der Datei, um jedes Mal den Dateinamen, den Ordner und das gewünschte Format zu erfragen.

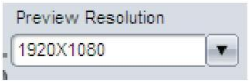
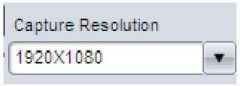
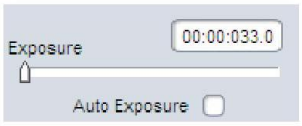
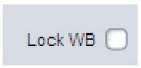
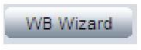
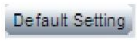
Kapitel 2: Bilderfassung

Regulieren Sie die Parameter der Kamera, um gute Live-Bilder, Bildgrößen zu erhalten und Bilder und Videos zu speichern.



Basiskontrollen

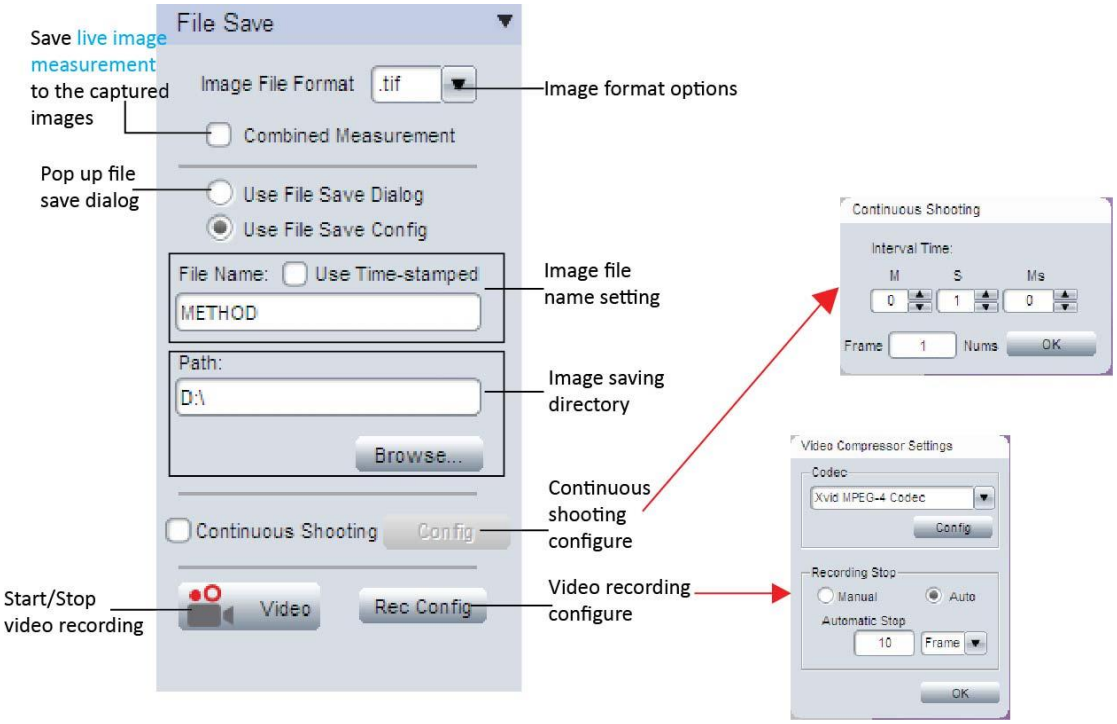


	Live image resolution	Select resolution for live image
	Captured image resolution	Select resolution for capturing
	Exposure Time	Change Exposure time to adjust image brightness. Auto Exposure mode will adjust proper brightness image automatically.
	Lock White Balance	Unchecked: Auto White Balance mode. Apply white balance calculation for every frame image. Checked: Lock the White Balance calculation result.
	White Balance Wizard	Wizard for getting better White Balance result.
	Default settings	Restore all the parameters to default value

Nach der Einstellung der Helligkeit des Live-Bildes wird empfohlen, den Weißausgleich anzuwenden, um die Farbe des Live-Bildes zu korrigieren. Befolgen Sie bitte die folgenden Schritte, um die besten Ergebnisse des Weißausgleichs zu erhalten:

1. Verrücken Sie den Objektträger mit der Probe auf einen leeren Bereich;
2. Wählen Sie [Lock WB] ab;
3. Wählen Sie, wenn das Bild die korrekte Farbe hat, das Sperrfeld [Lock WB];
4. Bringen Sie erneut den Objektträger dorthin, wo sich die Probe befindet.

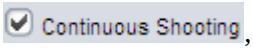
Aufnahme von Bildern und Videos



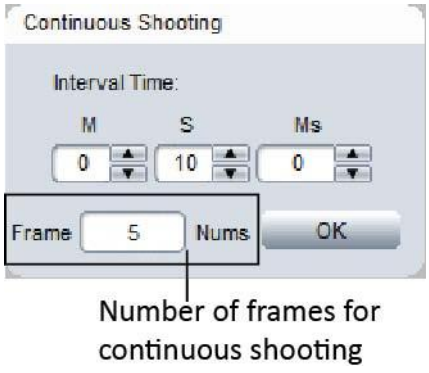
- Im Dropdown-Menü [File Format] gibt es 4 Dateiformate: JPEG, BMP, TIFF und RAW.

Die Bilddateien im RAW-Format erhalten von der Kamera bei einem Minimum verarbeitete Daten. Es muss durch spezielle Software (zum Beispiel Photoshop, imagj etc..) gelesen werden.

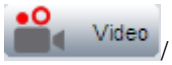
Serienbildaufnahme

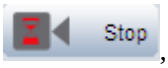
- Klicken Sie auf das Kontrollfeld **Continuous Shooting** [Serienaufnahme] 

, die Software wird automatisch eine Reihe von Bildern speichern, nachdem eine einzelne Aufnahme ausgeführt wurde.
- Klicken Sie auf [Config], um die Anzahl der aufzunehmenden Bilder und das Zeitintervall einzustellen.



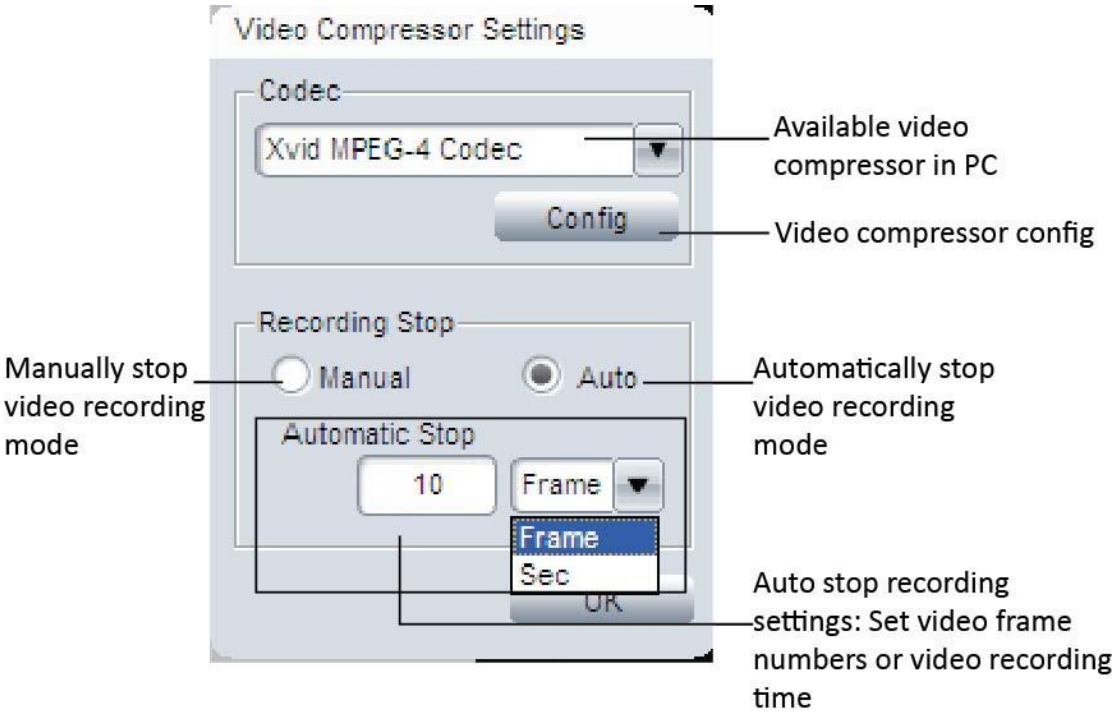
Video-Aufzeichnung

Klicken Sie auf [Video] 

/ 

, um die Videoaufzeichnung zu beginnen/zu stoppen.

Klicken Sie auf [Rec Config], um das Konfigurationsfester der Videoaufzeichnung zu öffnen.



Es ist der Modus [Manual] und [Auto], um die Aufzeichnung zu stoppen.

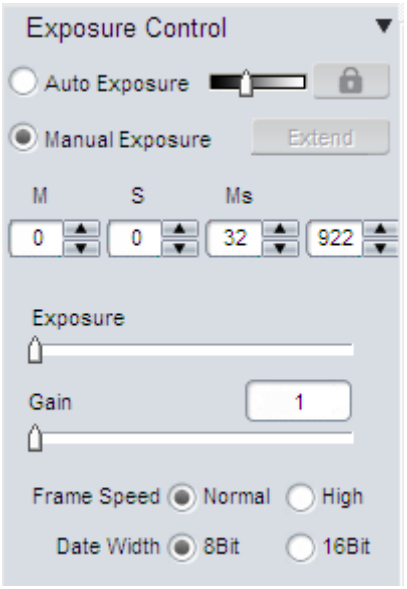
- Modus [Manual], die Taste [Video] wurde gedrückt, um die Aufzeichnung zu starten und zu unterbrechen.
- Modus [Auto], Voreinstellung der Anzahl der Bilder oder der Aufzeichnungszeit; wenn die Schaltfläche [Video] gedrückt wird, stoppt die Software die Aufzeichnung automatisch, nachdem die voreingestellte Anzahl an Fotos gespeichert wurde oder nach der vorprogrammierten Aufzeichnungszeit.
- [Rec Config] >> [Codec] zeigt die Liste aller auf dem PC verfügbaren Videokompressoren an.

Das ohne irgendeine Kompression aufgezeichnete Video wird sehr groß sein. Die Software wird automatisch die auf dem PC installierten Videokompressoren suchen.

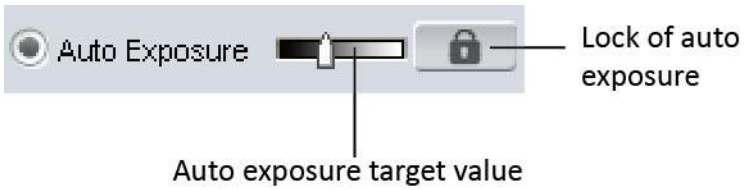
Belichtungskontrolle

Ändern Sie die Belichtungszeit, die Verstärkung, um die Helligkeit des Bildes einzustellen. Wählen Sie die Geschwindigkeit der Phasenbilder (Frame speed), um verschiedene unterschiedliche Bilderraten für Live-Bilder zu erhalten. Stellen Sie die Tiefe der Daten bei 8-bit oder 16-bit für die aufgenommenen Bilder ein.

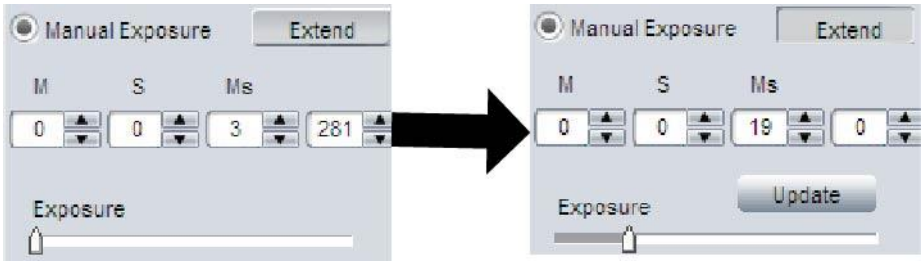
Automatische Belichtung



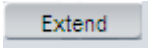
- Wählen Sie das Kontrollfeld [Auto Exposure], die Software wird beginnen, die Belichtungszeit automatisch zu regulieren, um die korrekte Helligkeit der Live-Bilder zu erhalten.
- Auto exposure target value: Wählen Sie die Referenz-Belichtungszeit für die Einstellung der automatischen Belichtungszeit.
- Lock: stoppt die Berechnung der automatischen Belichtungszeit.



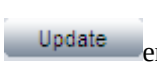
Manuelle Belichtung



Stellen Sie die Belichtungszeit manuell ein.

[Extend] 

wird verwendet, um eine längere Belichtungszeit zu erhalten. Diese Funktion ist **nur** für **CCD**-Kameras verfügbar. Für die anderen Kameras, insbesondere die Kamera CMOS, ist die maximale Belichtungszeit geringer als 1 Sekunde, anschließend [Extend] wird sie deaktiviert.

[Update] 

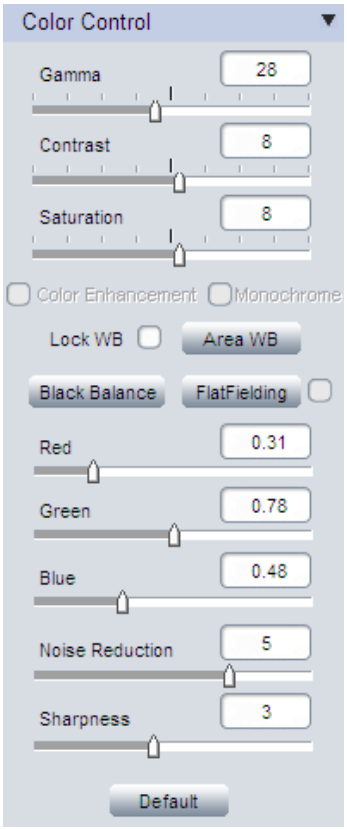
erscheint, nachdem [Extend] ausgewählt wurde. Klicken Sie auf diese, um die vorherige Belichtungszeit zu stoppen und unverzüglich die neue zu starten. Für die Anwendungen mit langen Belichtungen wird dringend empfohlen, [Update] zu verwenden, um eine neue Einstellung zu starten. Dies hilft,

um schneller das Bild mit der neuen Belichtung zu erhalten. Wenn die Belichtungszeit unter 2-3 Sekunden liegt, ist es nicht erforderlich, sie zu verwenden.

Verstärkung, Bildfrequenz und Datenbreite (data Width)

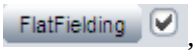
Gain		Increase the power of the image data. Higher gain gives brighter images, but also makes the noise signal more obvious.
Frame Speed	High Speed	Corresponding to high pixel clock. Gives faster frame rate.
	Normal Speed	Offer lower frame rate than High Speed, but gives longer maximum exposure time.
Data Width	8-bit	8-bit images use 2^8 = 256 gray levels to represent image details.
	16-bit	16-bit images use 2^16 gray levels to represent image details. ONLY available for CCD & Discovery series cameras in .Tiff and .Raw formats.

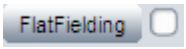
Farbkontrolle



Flat Field-Funktion

Die Flat Fielding-Funktion wird verwendet, um eine ungleichmäßige Helligkeit des Bildhintergrundes zu korrigieren.

- Klicken Sie auf [FlatFielding] 

, um die Berechnung der Parameter der Einheitlichkeit des Hintergrundes zu starten und sie auf das Live-Bild anzuwenden.
- Wenn das Feld 

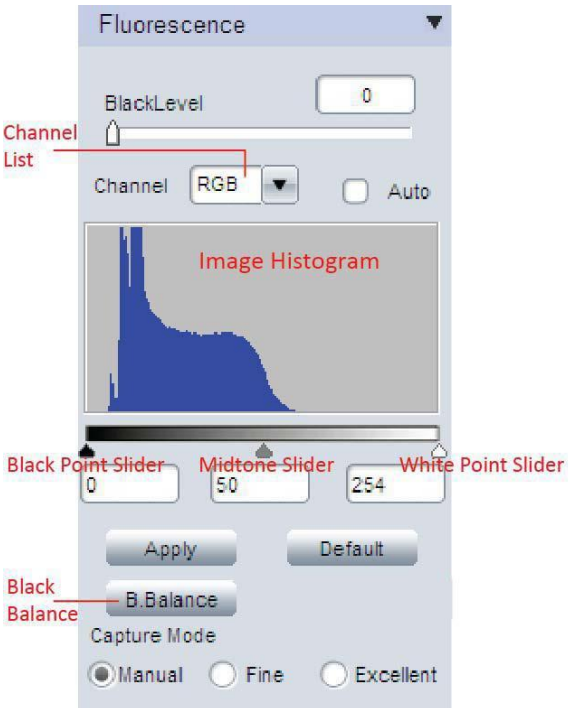
abgewählt wird, werden die Parameter der Einheitlichkeit des Hintergrundes nicht am Live-Bild angewendet.

Verrücken Sie die Probe zuvor auf einen leeren Bereich, um ein besseres Ergebnis der Einheitlichkeit des Hintergrundes zu erhalten. Wenden Sie dann [FlatFielding] wieder an, verrücken Sie anschließend erneut die Probe.

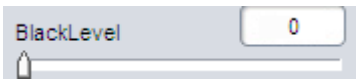
Wenn sich die Beleuchtung ändert, machen Sie erneut [FlatFielding], um die uneinheitliche Helligkeit des Hintergrundes zu korrigieren.

Parameter für die Fluoreszenz

In der Software sind die Parameter enthalten, die für die Verwendung bei Anwendungen mit Fluoreszenz oder im Allgemeinen mit wenig Licht nützlich sind. Sie helfen, um einfacher und schneller bessere Bilder zu erhalten.



Black Level



Die Funktion Black Level (Schwarzwert) definiert den Grad der Helligkeit im dunkelsten Teil des Bildes. Bei Bildern mit schwachem Licht hilft sie, mehr Details im dunklen Bereichen zu sehen.

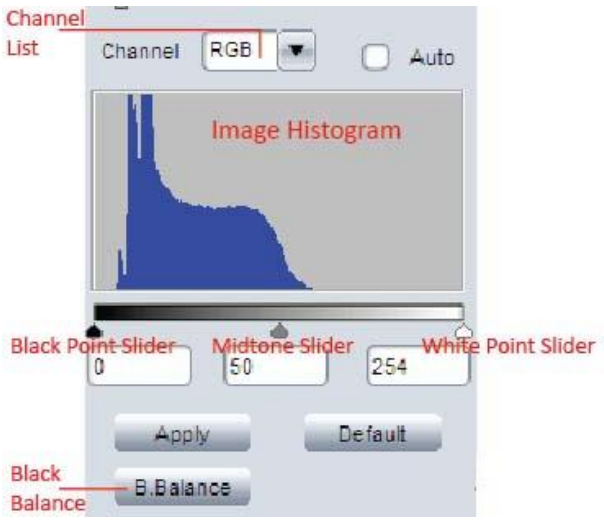
Bei Anwendungen mit wenig Licht wird in der Regel eine ziemlich lange Belichtungszeit benötigt, um korrekte Bilder zu erhalten. Wenn man eine lange Belichtungszeit zu Beginn einstellt, könnte viel Zeit erforderlich sein, um die zu beobachtende Probe zu finden und einen korrekten Abschnitt zu erhalten (die lange Belichtungszeit abwarten, um ein neues Bild zu erhalten, einstellen, anschließend erneut warten…). Zu Beginn wird während der Suche des zu beobachtenden Bildes empfohlen, eine kurze Belichtungszeit einzustellen, aber die Verstärkung (Gain) und den Schwarzwert zu erhöhen. Nach Identifizierung des zu beobachtenden Bildes kann man den Wert der Verstärkung und den Schwarzwert reduzieren und anschließend die Belichtungszeit erhöhen. Dies hilft, eine bessere und schnellere Bildaufnahme zu erzielen.

Levels

Die Verwendung des Werkzeugs levels (Ebene) kann die Helligkeitsebenen im Histogramm durch Verwendung von drei Hauptkomponenten bewegen und verlängern: ein schwarzer Punkt, ein weißer Punkt und der Cursor der Halbtöne, **Channel List** (Kanalliste): erlaubt die Auswahl, ob die RGB-Kanäle oder einer der drei Farbkanäle individuell (rot, grün und blau) zu verändern sind.

[Auto] Kontrollfeld: reguliert automatisch die Ebene im Live-Bild.

Manuelle Einstellung der Ebenen des Bildes.



Bewegen Sie den Cursor des Weißpunktes nach links, er ist in der Lage einige Informationen im dunklen Bereich zu erfassen. Wenn man den Schwarzpunkt nach rechts bewegt, werden Informationen im hellen Bereich erfasst.

Klicken Sie nach Einstellung der Ebenen auf Apply, um die Einstellung zu bestätigen. Wenn Sie auf das Originalbild zurückkehren müssen, klicken Sie auf Default, um das Bild zurückzusetzen.

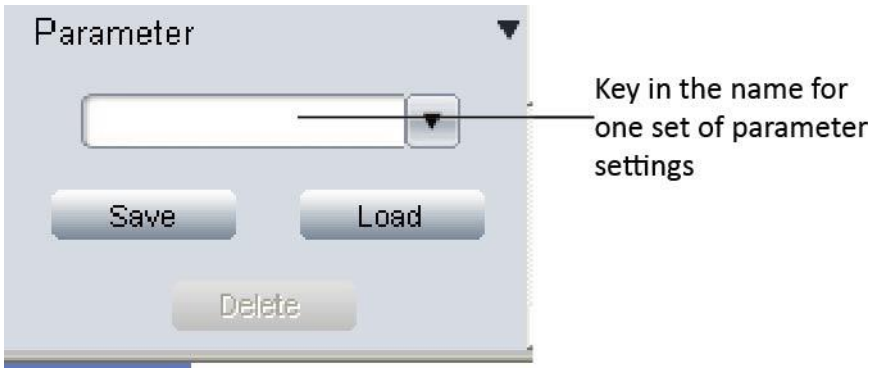
[Black Balance]: Gibt der Kamera einen Hinweis von “echt schwarz”. NUR bei dark field (Dunkelfeld)-Anwendungen erforderlich.

Aufnahmemodus

Es gibt drei Aufnahmemodi, die speziell für die Fluoreszenzanwendungen entwickelt wurden.

Manual	Capture the image with current parameter settings
Fine	Automatically reduce the gain and extend the exposure to get the same brightness image. (Lower gain will give lower noise level images)
Excellent	Automatically save 10 images with current settings and then get an average image. (It needs to take a while to capture an image in this mode.)

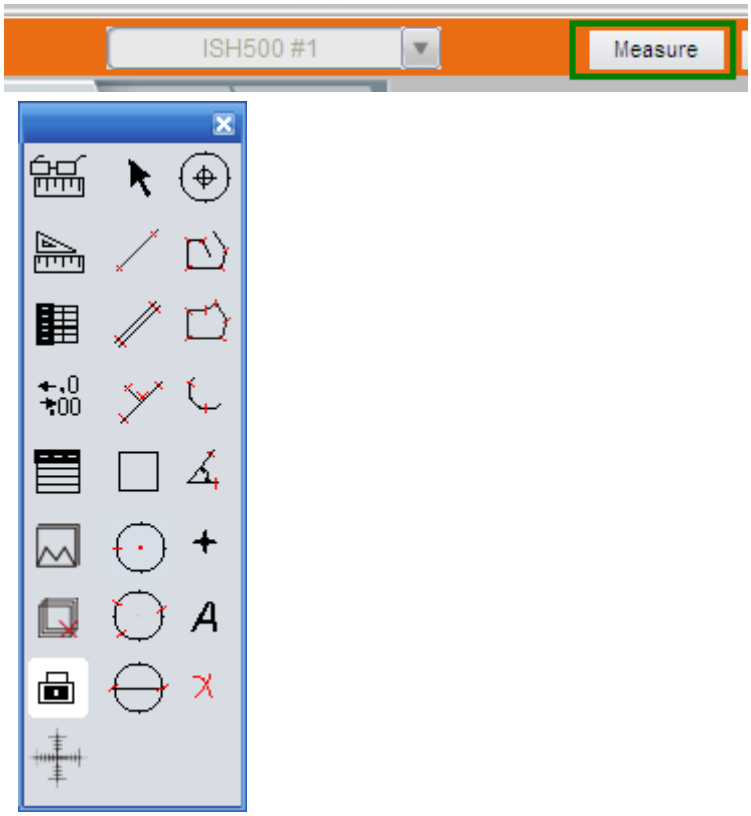
Parametergruppen



Speichern Sie Parametersätze für die verschiedenen Anwendungen. Die gespeicherten Parameter umfassen die Belichtungszeit, Verstärkung, Bildfrequenz, die Datenbreite, Bandbreite, Kontrast, Sättigung, Verbesserungszustand der Farbe, Weiß und Schwarz, die RGB-Verstärkung und den Schwarzwert. Es können bis zu 20 Parametersätze gespeichert werden.

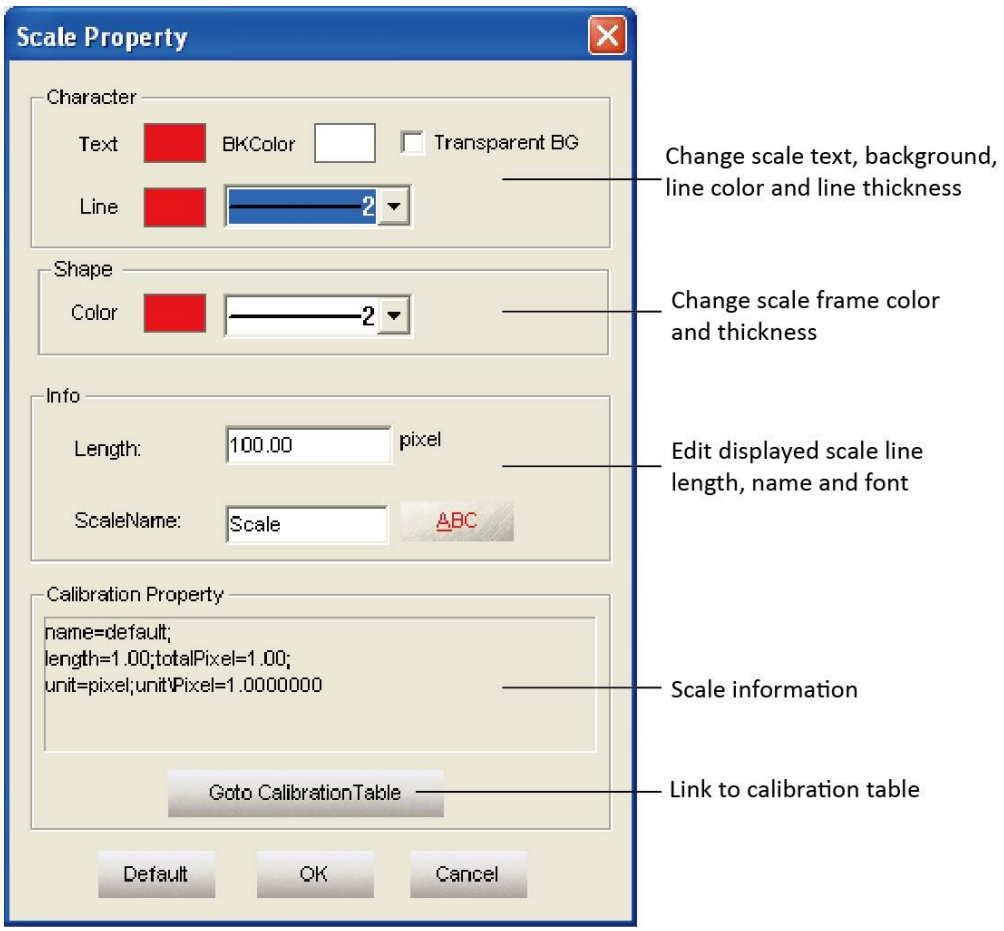
Kapitel 3: Messungen auf Live-Bildern und aufgenommenen Bildern

Klicken Sie auf [Measure] oben in der Software, um die Messwerkezuge anzuzeigen.



	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
	Polyline	Measure polyline length.
	Polygon	Measure polygon area and perimeter.
	Arc	Measure a curve angle, radius and length.
	Angle	Measure the angle
	Count	Counter. Manually 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.

Abänderung des Maßstabs der Linien

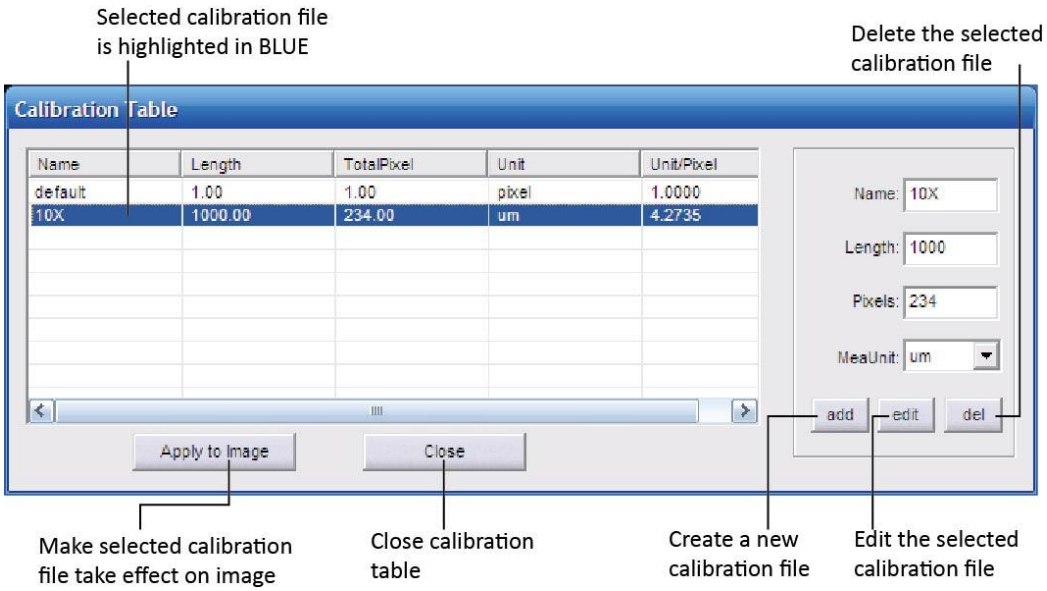


Klicken Sie zwei Mal auf den Maßstab, um seine Eigenschaften zu sehen und sie bei Bedarf abzuändern.

Erstellung einer Kalibrierungsdatei

Um das tatsächliche Maß von Proben zu messen, muss zuerst eine Tabelle in Entsprechung zur Kalibrierung erstellt werden. Konsultieren Sie den Anhang 1, um mehr Details über die Kalibrierung der Messungen zu bekommen.

Kalibrierungstabelle

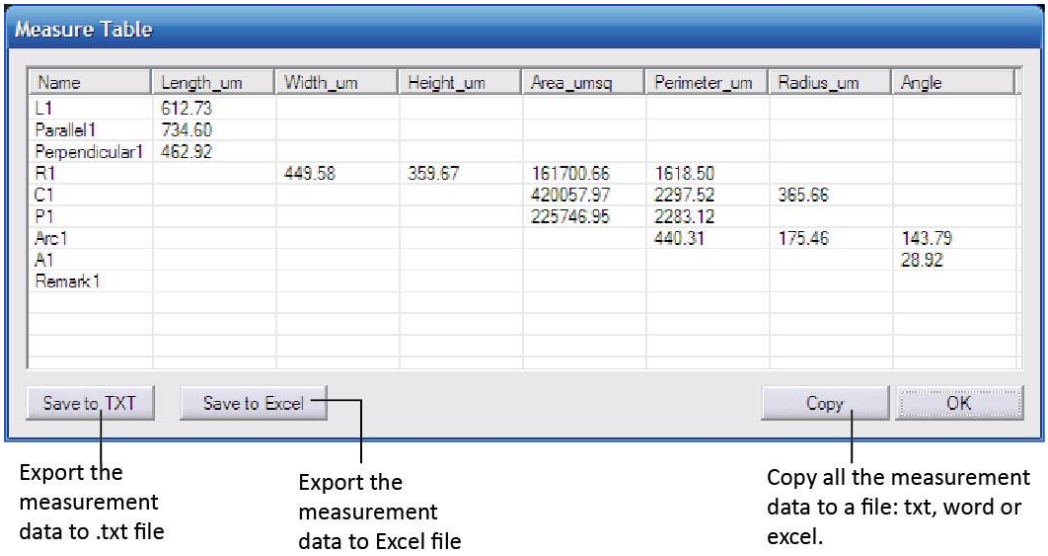


Klicken Sie auf  Calibrate Table [Kalibrierungstabelle], um die Kalibrierungstabelle zu öffnen.

- Wählen Sie die korrekte Kalibrierungsdatei für die korrekte Messung auf dem laufenden Bild.

Durch Verwendung der falschen Kalibrierungsdatei erhält man ein falsches Ergebnis der Messung. Vergewissern Sie sich, dass die Kalibrierungsdatei dem laufenden Bild entspricht. Aus diesem Grund ist es nützlich, der Kalibrierungsdatei einen Namen mit den Einstellungen der Aufnahme oder einen Namen des Objektivs zu geben.

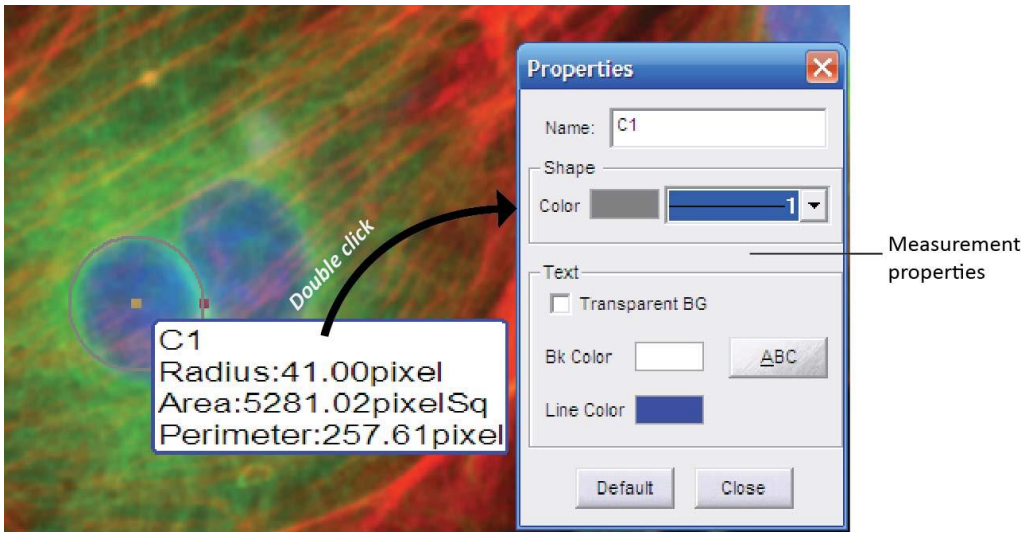
Messungsliste



Alle Messungen werden in der Measurement List [Liste der Messungen] aufgelistet. Die Softwareerlaubt den Export der Messdaten auf eine TXT- oder Excel-Datei.

Messung

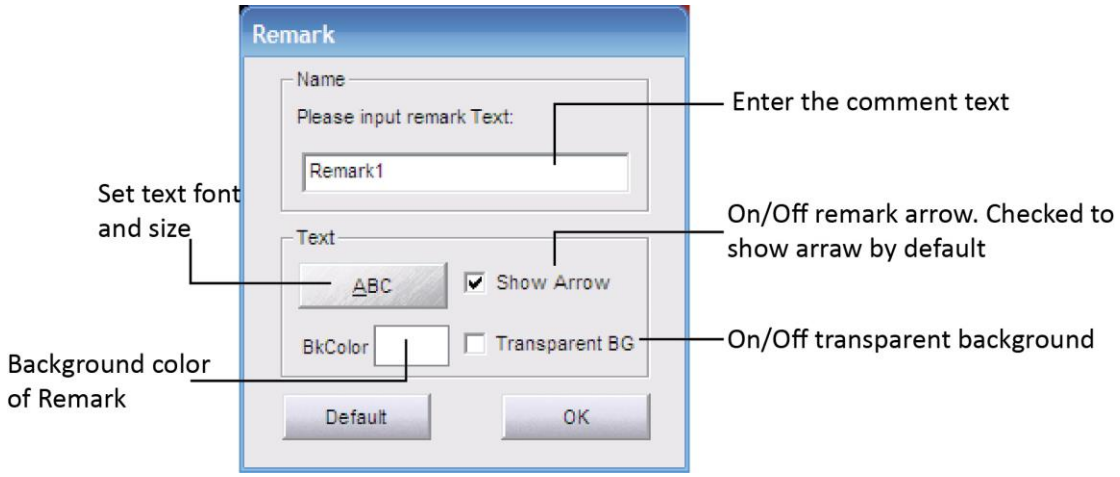
Die Software erlaubt die Ausführung von Messungen mit Linie, parallel, senkrecht, rechteckig, kreisförmig, vieleckig, bogenförmig und Messung von Winkeln. Die Funktion Count (Zählung) erlaubt die manuelle Zählung von Objekten. Zudem erlaubt die Funktion Annotate (Anmerkung) das Hinzufügen von Kommentaren auf den Bildern.



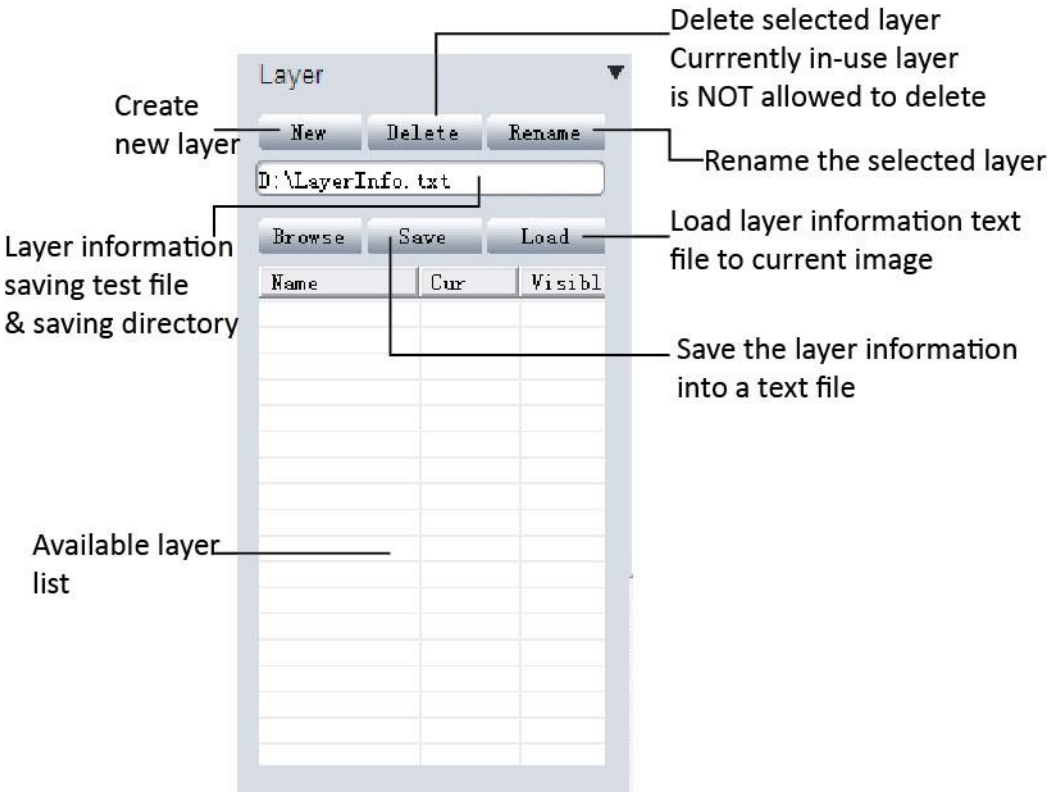
Machen Sie einen Doppelklick auf die Messdaten, um das Konfigurationsmessfenster anzuzeigen. Es erlaubt die Abänderung des Namens von Daten, der Farbe, der Stärke, der Hintergrundfarbe und der Schriftart.

Anmerken

Wählen Sie [Annotate] und klicken Sie auf den Bildbereich, zu dem Sie einen Kommentar hinzufügen möchten.



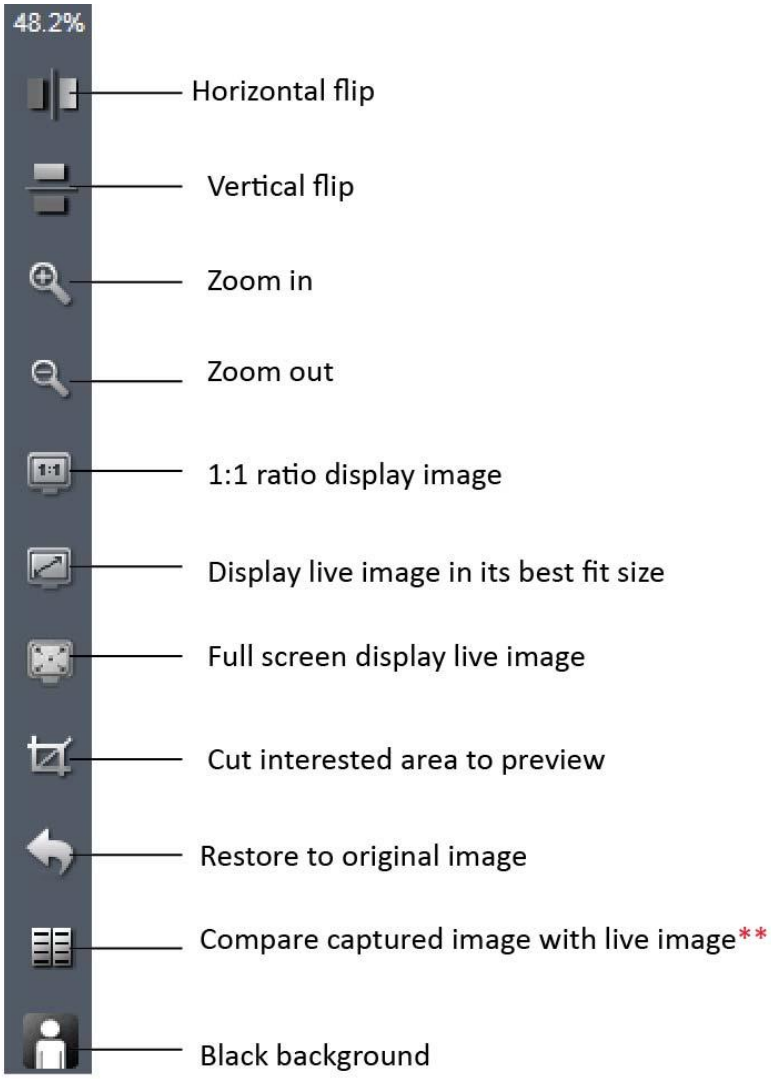
Ebenen



Wenn es erforderlich ist, Blockmessungen auf den Bildern auszuführen, würden einige verschiedene Messungen überlagert werden und die Messung sehr schwer machen. Die Funktion layer erlaubt die Erstellung mehrerer Ebenen, um verschiedene Messungen auszuführen und macht das Hinzufügen einer großen Anzahl von Messungen auf dem Bild einfach. Konsultieren Sie den Anhang 2 für weitere Informationen.

Schnelle Verbindungen (Live-Bild)

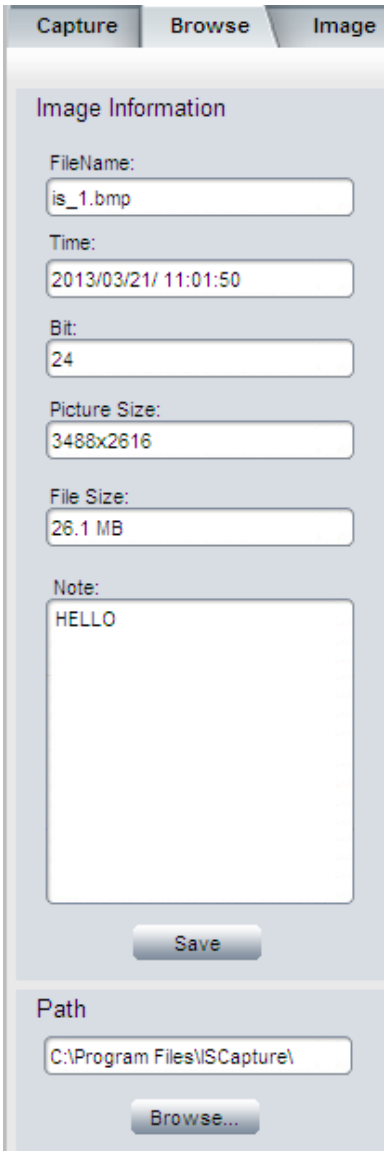
Auf der rechten Seite des Fensters des Live-Bildes gibt es einige schnelle Verbindungen, um das Live-Bild schnell auszuarbeiten.



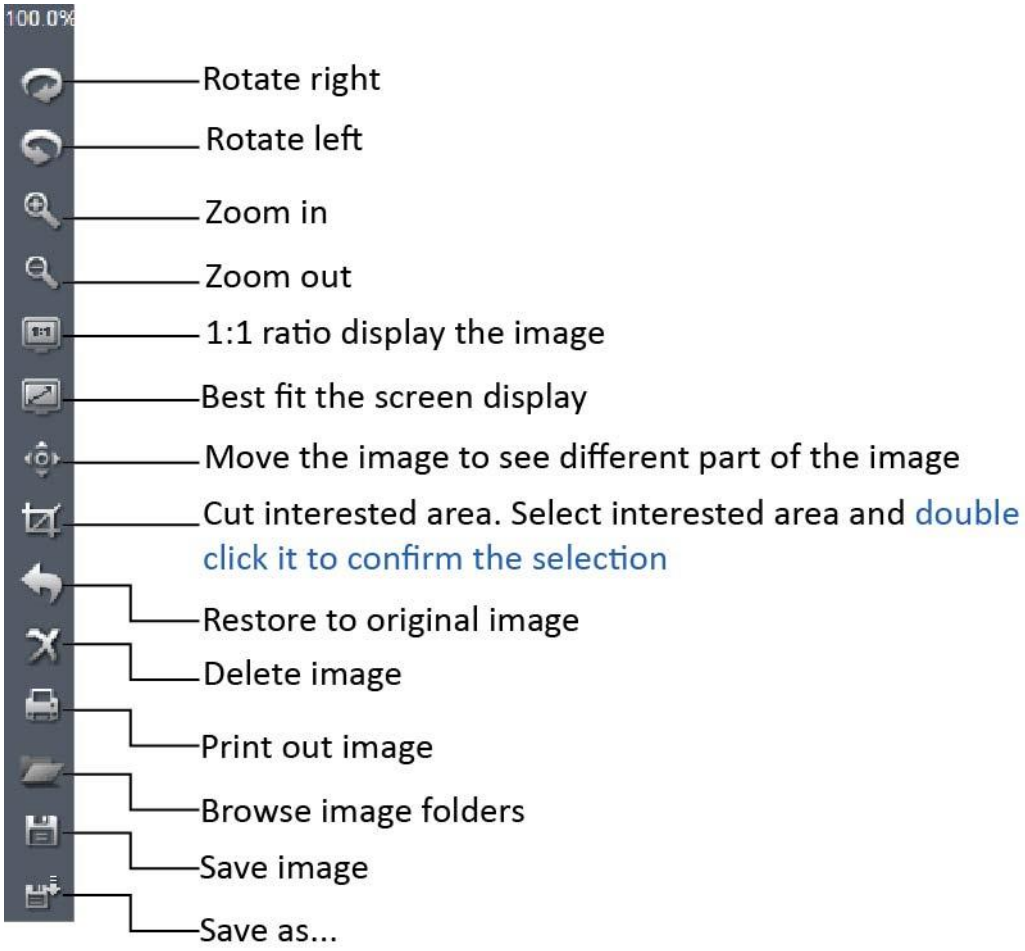
** Compare function: Live image will be displayed on the left side. Click on the taken image thumbnail to select it to compare with live images (Chosen compared image will be enhanced in gray-white frame).

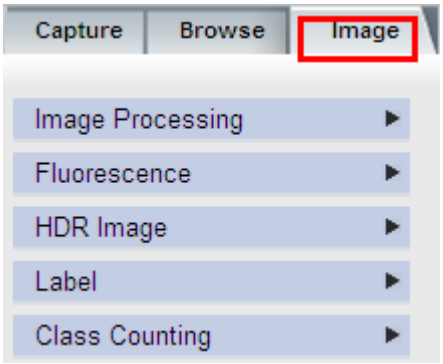
Kapitel 4: Bildverwaltung

Anzeige der Bilder auf dem Paneel [Browse], zeigt den Namen der Bilddatei, die Aufnahmezeit, die Farbtiefe (bit) und die Bildgröße an. Diese Funktion erlaubt auch das Hinzufügen von Kommentaren zu jedem einzelnen Bild. Wenn man das nachfolgende Bild anzeigt, zeigt die Software anschließend auch den Kommentar an.



Die Software bietet einige schnelle Funktionen auf der rechten Seite im Modus ***Browse*** oder ***Image***.

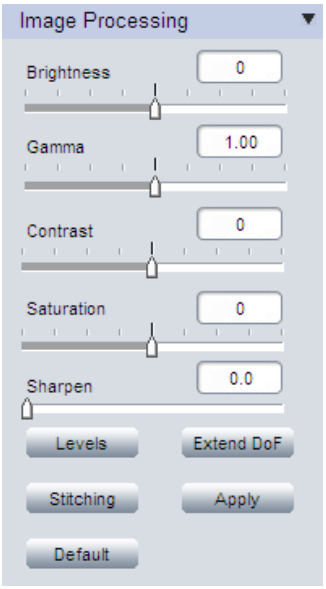




In diesem Bereich sieht die Software erweiterte Bildverarbeitungsfunktionen vor und erlaubt die Messungen auf der erfassten Aufnahme.

Bildverarbeitung (Image processing)

Diese Funktion liefert die Basisfunktionen der Verarbeitung der gemachten Bilder und erlaubt zudem erweiterte Zusatzfunktionen wie extended Depth of Focus (erweiterte Tiefenschärfe estesa) and image stitching (Bildvereinigung).

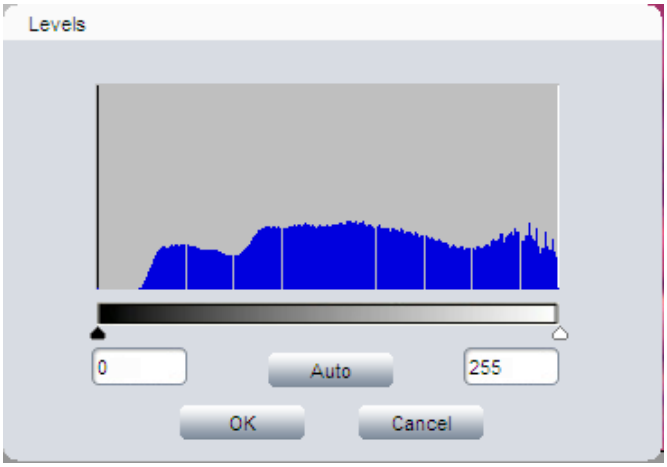


Brightness	Adjust captured image brightness. Default brightness = 0
Gamma	Adjust captured image gamma. Default gamma = 1.00
Contrast	Adjust contrast. Increase the contrast, the shadows become darker and the highlights brighter. Decrease the contrast, the highlights grow dim and the dark areas lighten up
Saturation	Adjust the color saturation. Fully-saturated colors are very bright, while low saturation are grayish.
Sharpen	Adjust the image sharpness. Sharpness is the contrast on the edges. Sharpening increases the bright and dark lines on edges.
Levels	Adjust image levels. Get more details in [Fluorescence]>>[Levels]
Extend DoF	Extend the Depth of Focus (DoF)
Stitching	Image stitching. Combine multiple images with overlapping fields of view to produce a segmented panorama or high-resolution image.
Default	Restore Brightness, Gamma, Saturation, Sharpen and levels back to the default value
Apply	Confirm to apply all the settings to the image.

Nach dem Klicken auf [Apply] werden alle Einstellungen auf das Bild angewendet. HINWEIS: wenn diese Option ausgewählt wird, kann man NICHT mehr auf das Originalbild zurückkehren.

Ebenen

Drücken Sie [Levels] Levels, um das Histogramm des Bildes zu erhalten. Es ermöglicht die Einstellung der Bildebenen. Die Regulierung der Ebene ist dieselbe wie auf dem Live-Bild. Weitere Informationen nachstehend [Capture]-->> [Fluorescence].



Erhöhung der Tiefenschärfe

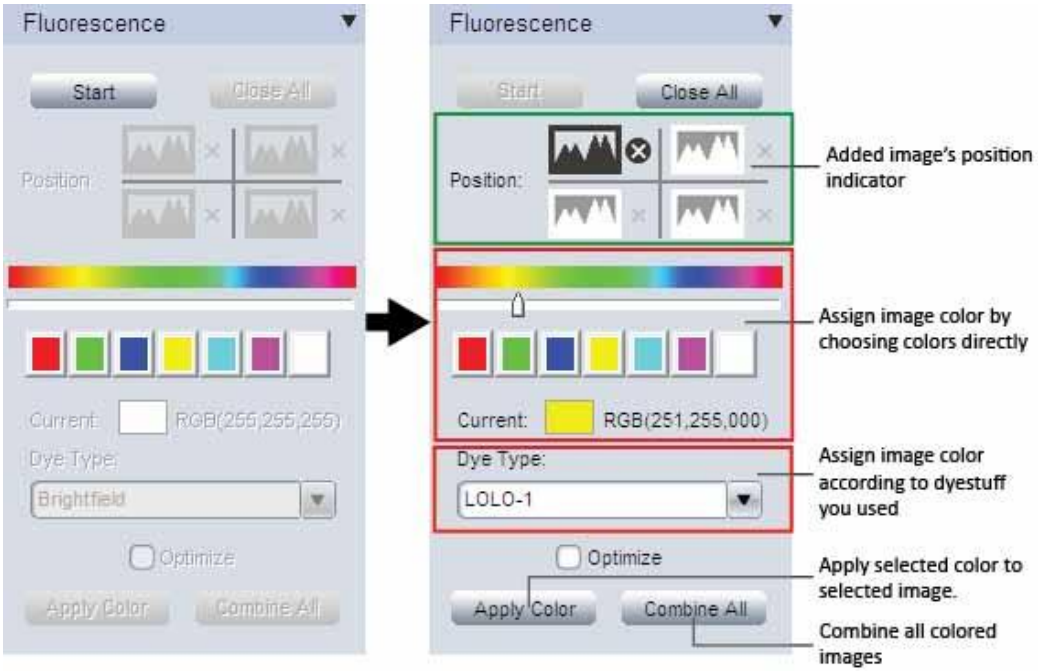
Die Erweiterung der Tiefenschärfe kombiniert mehrere Bilder, um einen Fokus zu erstellen. Sie wird verwendet, um die Tiefenschärfe eines Bildes zu erweitern. Siehe Anhang 3: Erweiterte Funktionen, für weitere Informationen.

Nebeneinanderstellen von Bildern

Klicken Sie auf Stitching, um die Konfiguration für das Nebeneinanderstellen von Bildern zu erhalten.

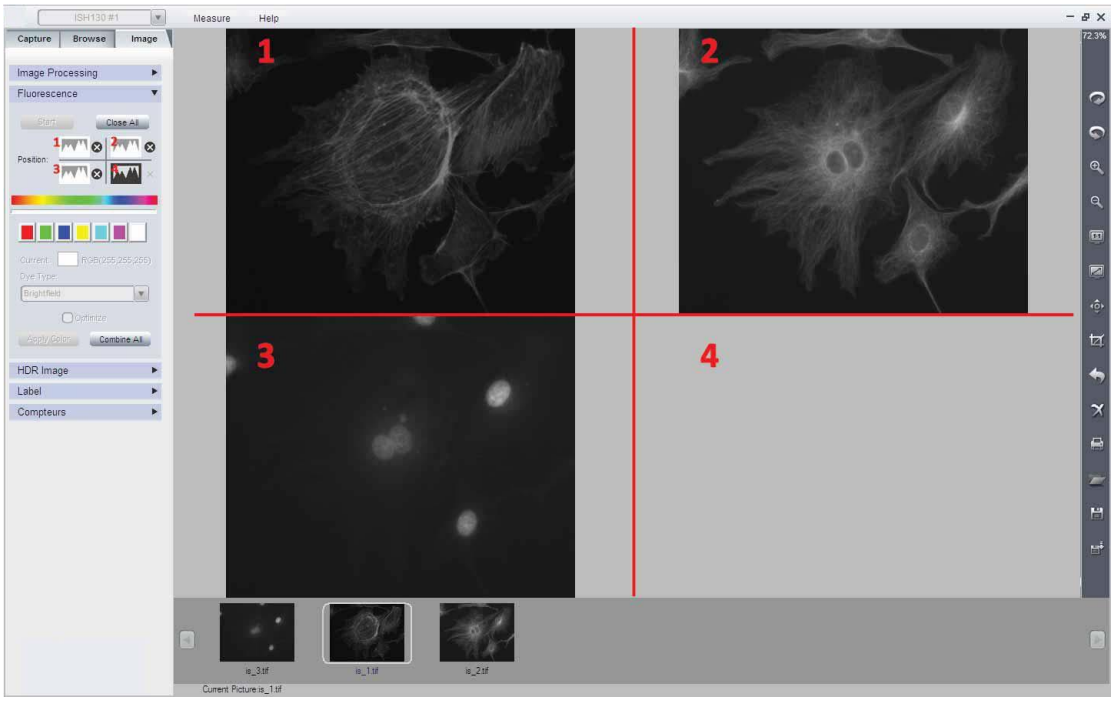
Diese Funktion erlaubt das Nebeneinanderstellen mehrere Bilder mit Sichtfeldern, die sich überlappen, um ein größeres Bild (Panoramaaufnahme) und mit hoher Auflösung zu erstellen. Siehe Anhang 3: Erweiterte Funktionen, für weitere Informationen.

Fluoreszenz

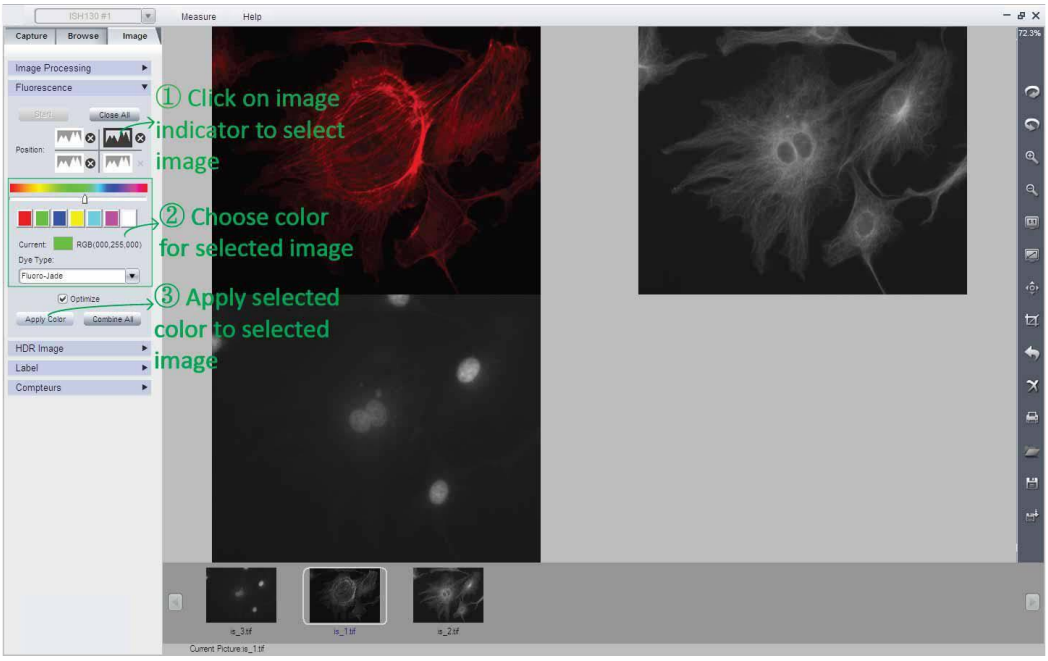


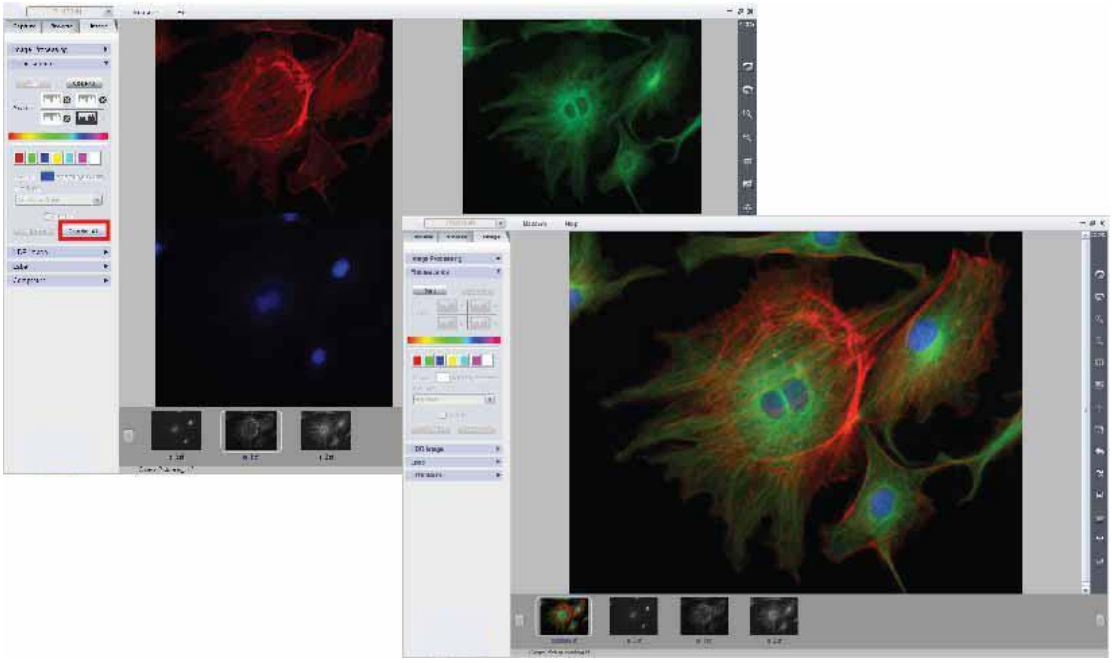
Diese Funktion wird verwendet, um einem Bild in Fluoreszenz unterschiedliche Farben zuzuweisen und sie zusammen in einem einzigen Bild zu kombinieren.

Schritt 1: Öffnen Sie in der Software die Bilder, die vereint werden müssen, klicken Sie anschließend auf [Start], um die Zusammenführung zu starten.
Schritt 2: Klicken Sie auf die Miniaturbilder, um die entsprechenden Bilder hinzuzufügen. Der Bildpositionsanzeiger zeigt die Position der hinzugefügten Bilder an. Maximal 4 Bilder können für die Kombination in Fluoreszenz hinzugefügt werden.



Schritt 3: Klicken Sie auf einen Bildanzeiger, um zu beginnen, die Farbe auf dem Bild anzuwenden.
① Klicken Sie auf einen Bildanzeiger, um es auszuwählen (das ausgewählte wird dunkel sein, die nicht ausgewählten in hellgrau).
② Weisen Sie die Farbe dem ausgewählten Bild zu.
Es gibt zwei Modi, um die Farbe zuzuweisen:
a. Klicken Sie auf die bevorzugte Farbe oder den Cursor, um sie auszuwählen.
b. Weisen Sie die Farbe nach dem Fluoreszenzfarbstoff aus dem Dropdown-Menü [Dye Type] zu.
③ Klicken Sie auf die Taste Apply color (Farbe Anwenden), um die ausgewählte Farbe dem Bild zuzuweisen.
Schritt 4: Klicken Sie auf [Combine All], um alle farbigen Bilder zu kombinieren.





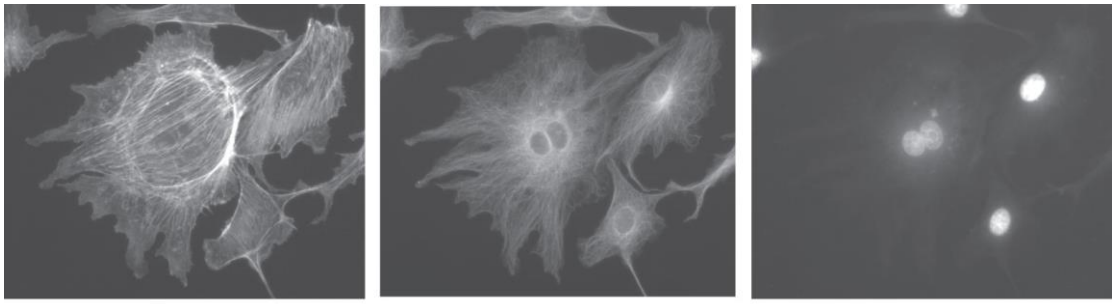
Es wird empfohlen Optimize, das Kontrollfeld Optimize während der Kombinationsphase auszuwählen. Es optimiert den Bildhintergrund, um ein besseres Bild zu erhalten. Wenn diese Funktion nicht ausgewählt wird, wird das Bild, das man erstellt, alle ursprünglichen Informationen enthalten. Keine zusätzliches Verfahren wird auf die Daten des Bildes angewandt.

Nach Erstellung des Bildes in Fluoreszenz,

kann die Funktion [Sharp] in [Image Processing] helfen, ein deutlicheres Bild zu erhalten und mehr Details zu sehen.

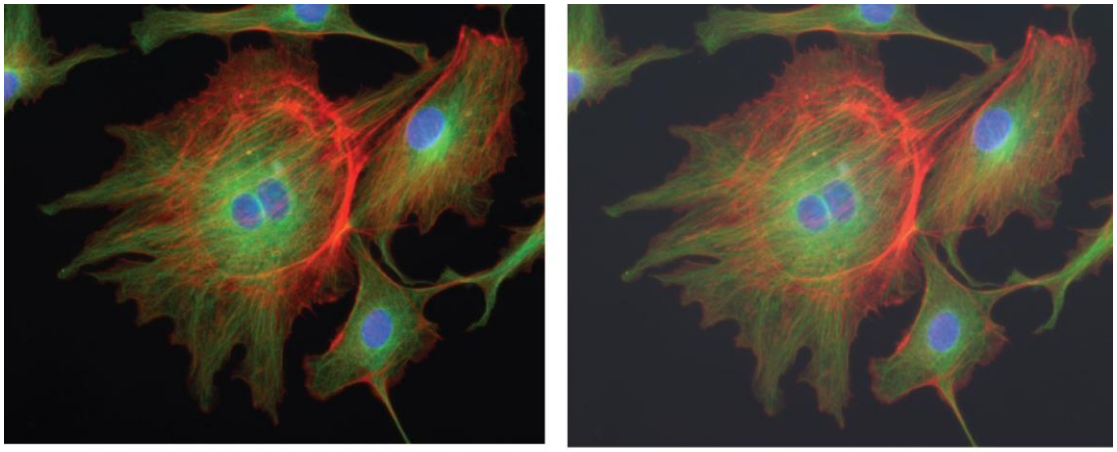
Wenn Sie ein falsches Bild oder eine falsche Farbe dem ausgewählten Bild zu weisen, reicht es, auf das kleine Kreuzchen hinter jedem Anzeiger zu klicken, um es zu löschen. Wenn Sie die derzeitige Kombination löschen möchten, reicht es, auf [Close All] zu klicken, um die Kombination zu löschen.

Originalbilder:



Original images

Kombiniertes Bild:

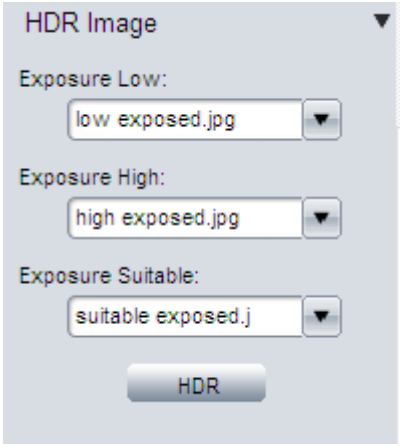


Combined image with optimization

Combined image without optimization

HDR-Bild

High Dynamic Range (HDR) wird verwendet, um ein größeren Dynamikbereich im Bild zu erzielen.

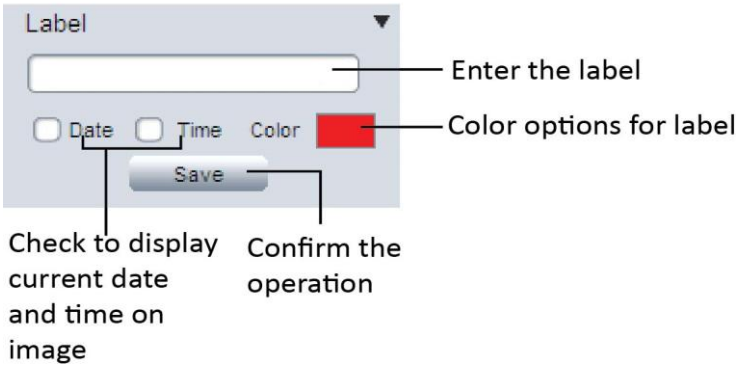


- Machen Sie ein Foto von derselben Szene mit unterschiedlichen Belichtungszeiten und laden Sie sie in die Software.

- Wählen Sie im Dropdown-Menü die entsprechenden Bilder für [Exposure Low], [Exposure High] und [Exposure Suitable].
- Drücken Sie [HDR], um die Bilder unterschiedlicher Belichtungen in einem einzigen zu kombinieren. Das Bild wird als "hdr_image" bezeichnet.

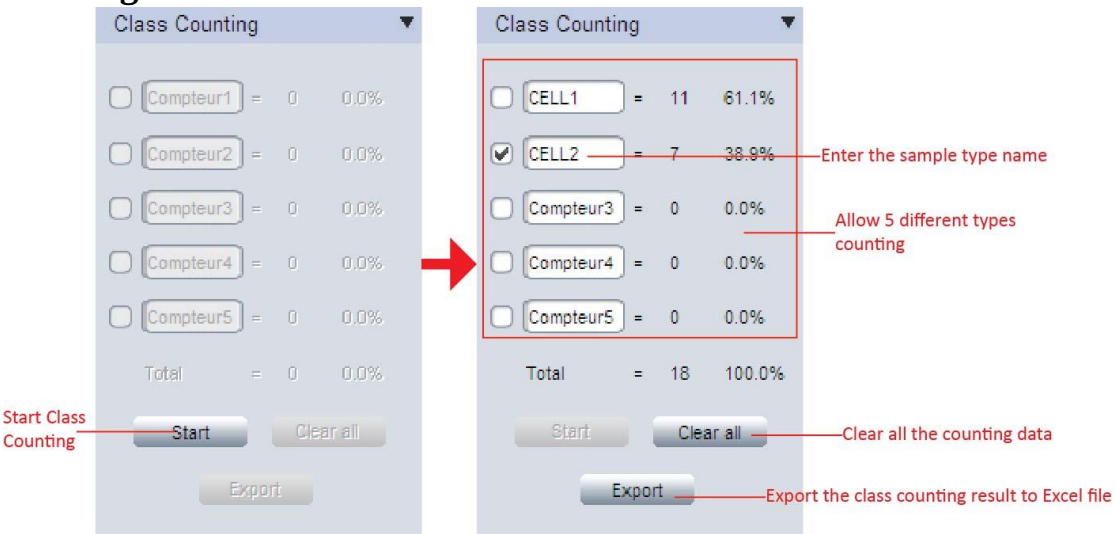
Wenn die Bilder mit unterschiedlichen Belichtungen nicht in die Software geladen werden, erlaubt die Schnellverbindung  auf der rechten Seite des Fensters der Software das Navigieren aller Bilder auf einfache Art.

Etiketten

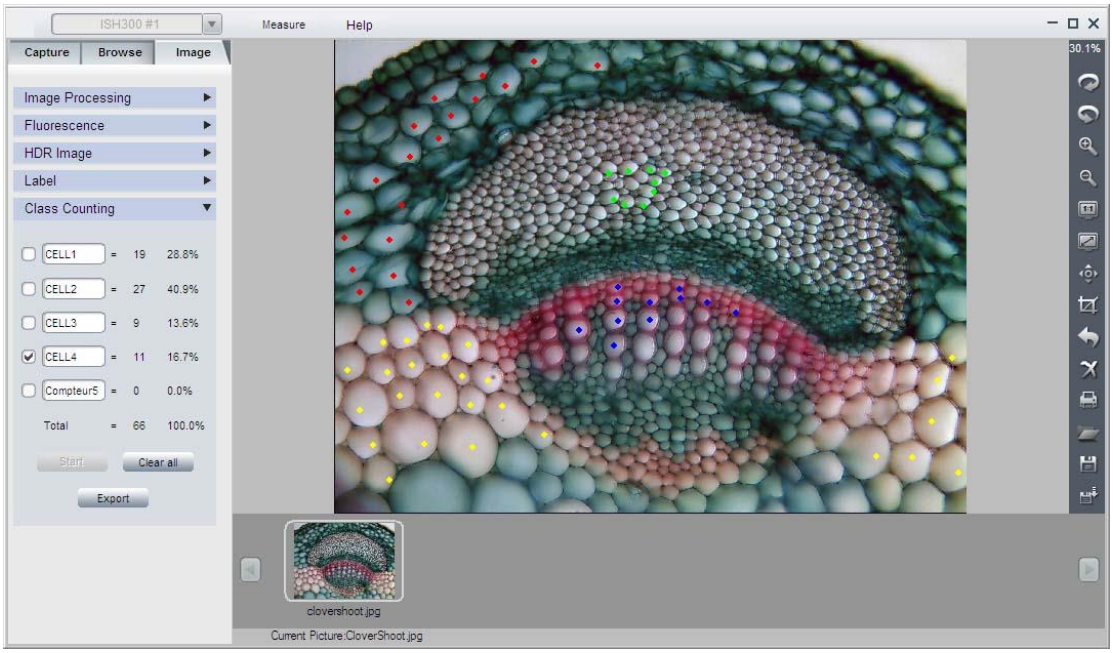


Diese Funktion fügt einen Text und die Uhrzeit und das Datum dem Bild hinzu. Klicken Sie auf [Save], um die Etiketten zu speichern.

Zählung



Die Zählfunktion erlaubt die Ausführung 5 verschiedener manueller Zählarten. Jeder Art wird mit unterschiedlichen Farbpunkten markiert.

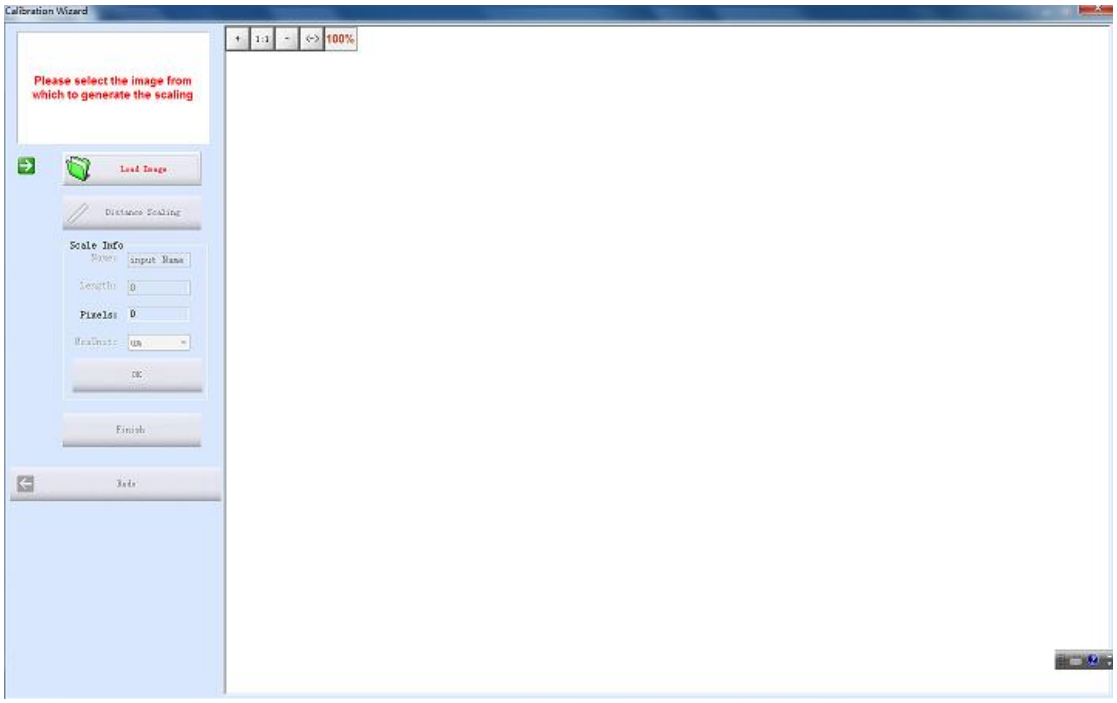


Anhang 1: Wie erstellt man eine Kalibrierungsdatei

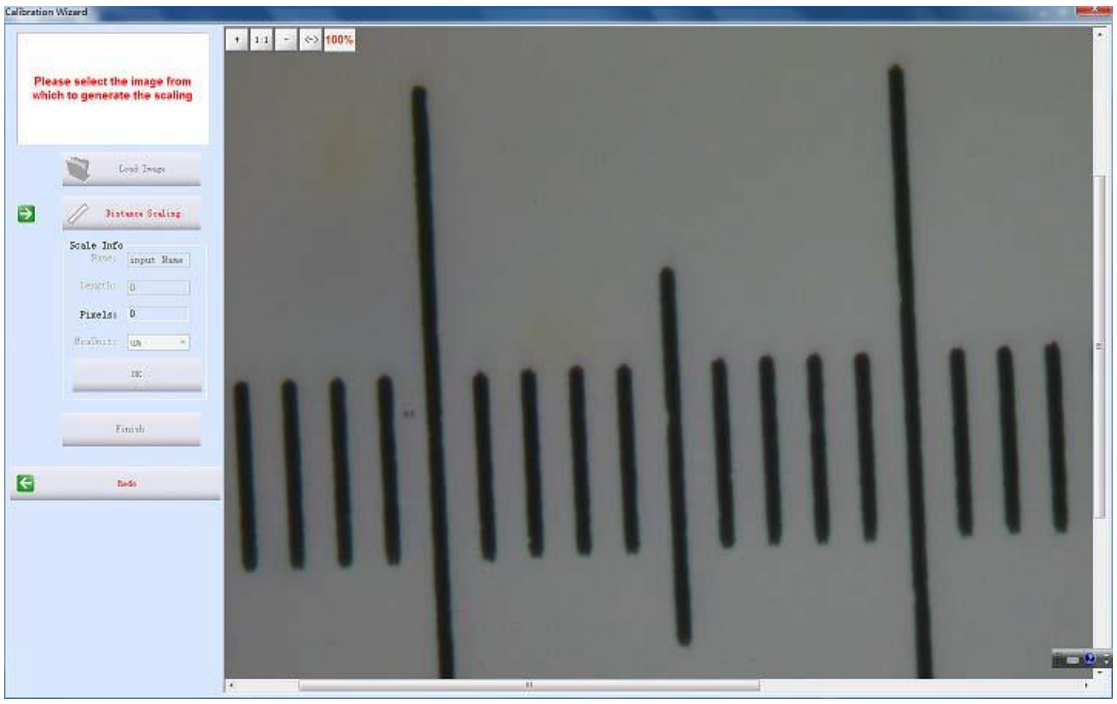
1. Erfassen Sie die Bilder des Kalibrierungsobjektträgers mit allen Objektiven, mit denen man arbeitet (wenn auch eine Reduktionslinse verwendet wird, ist es erforderlich, das Bild des Kalibrierungsobjektträgers mit der eingesetzten Reduktionslinse zu erfassen).

Wenn nur ein Objektiv und eine Auflösung in der Anwendung verwendet werden, ist ein einziges Foto des Kalibrierungsobjektträgers ausreichend. Das Kalibrierungsbild des Objektträgers muss exakt mit demselben Objektiv und denselben Einstellungen des Mikroskops erfasst werden, die dann verwendet werden, um den Probeobjektträger zu beobachten.

2. Klicken Sie auf , um mit der Erstellung der Kalibrierungsdatei zu beginnen.

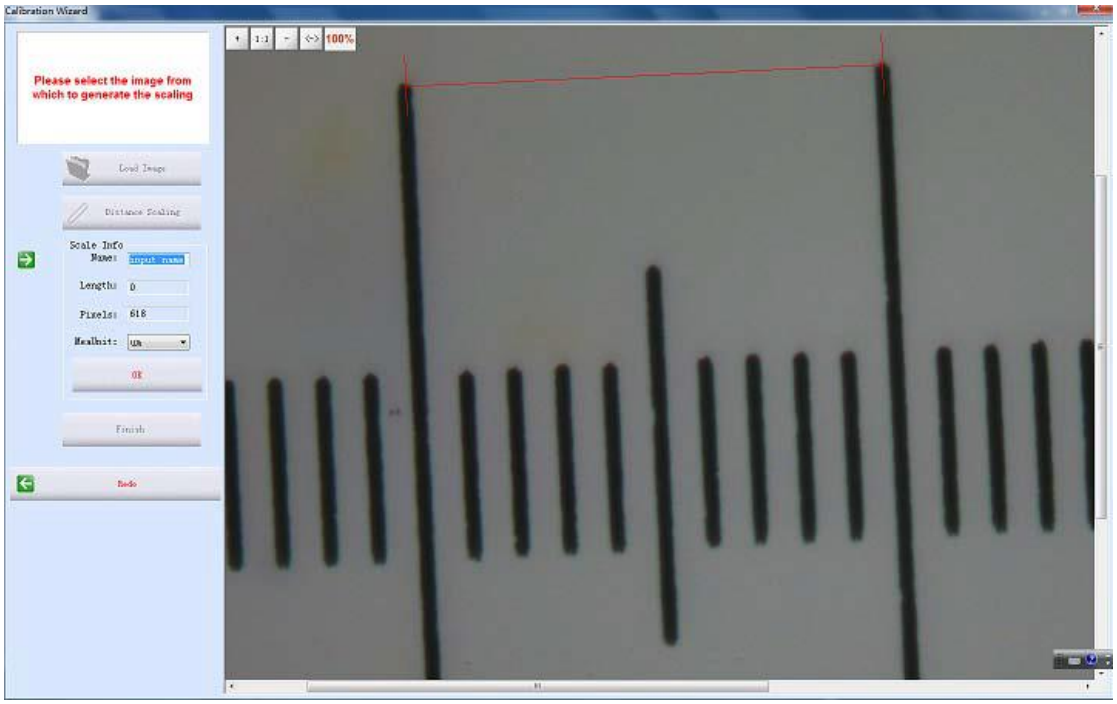


5. Klicken Sie auf [Load Image], um das Foto des Kalibrierungsobjektsträgers, das in Schritt gemacht wurde, zu laden.



6. Klicken Sie auf [Distance scaling] und bewegen Sie den Cursor auf dem Bild des Objektträgers, zeichnen Sie eine Linie, um die Bezugslänge zu nehmen.

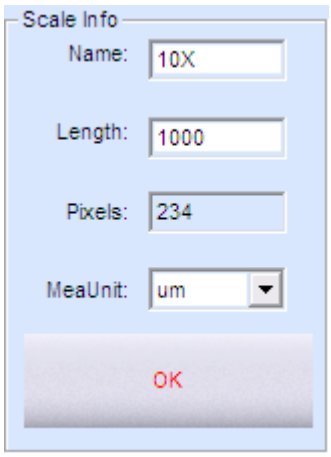
Die Verwendung eines längeren Abstands als Bezugslänge ergibt genauere Messergebnisse. Zum Beispiel mit zehn Skaleneinheiten als Bezugslänge erhält man genauere Ergebnisse im Vergleich zur Verwendung einer einzigen Skaleneinheit.



5. Geben Sie den Namen der Kalibrierungsdatei und die Länge der gezeichneten Linie ein.

Wenn Sie mehr als eine Kalibrierungsdatei benötigen, wird als Name der Bezugsdatei “Objektiv – Reduktionslinse (falls verwendet) + Auflösung” empfohlen.

Achten Sie bitte, wenn Sie eine Länge eingeben auf die Einheit der Kalibrierungsskala des Objektträgers und die verwendete Messeinheit. Zum Beispiel, die Einheit der Kalibrierungsskala ist 0.1 mm; die ausgewählte Messeinheit ist µm (micron) und die Bezugslänge, die man gezeichnet hat, beträgt 10 Skaleneinheiten; an diesem Punkt muss die Länge 10 x 0,1mm x 1000 = 1000 µm sein.

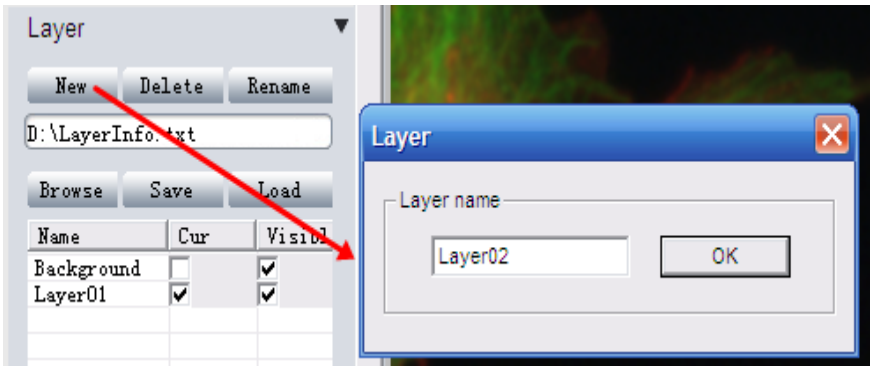


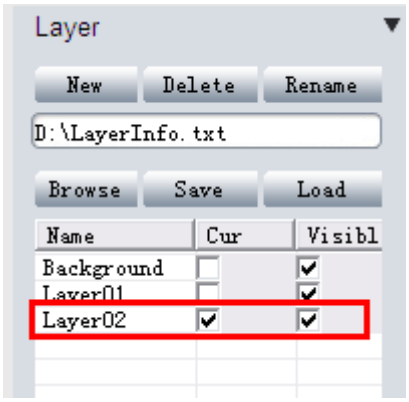
8. Klicken Sie auf [OK], um die Kalibrierung zu bestätigen. Die neue Datei namens “10X”, zum Beispiel, wurde in der Calibrate Table [Kalibrierungstabelle] erstellt.

Anhang 2: Verwendung der Ebenen für Blockmessungen

Wenn es erforderlich ist, Blockmessungen auf dem Bild auszuführen, müssen einige unterschiedliche Messungen überlappen und dies macht die Messung sehr schwer. Die Funktion layer erlaubt die Erstellung mehrere Ebenen, um unterschiedliche Messungen auszuführen und das Hinzufügen einer großen Anzahl von Messungen auf dem Bild einfach zu machen.
Wenn bereits Messungen auf dem Bild ausgeführt wurden, erstellt die Funktion **[Measure]-->[Layer]** automatisch den "background" und "Livello01" für das aktuelle Bild.

Klicken Sie auf [New], um eine neue Ebene zu erstellen. Es ist möglich, den Namen der Ebene umzubenennen. Standardmäßig werden die Namen "Layer02", "Layer03"...usw. verwendet.

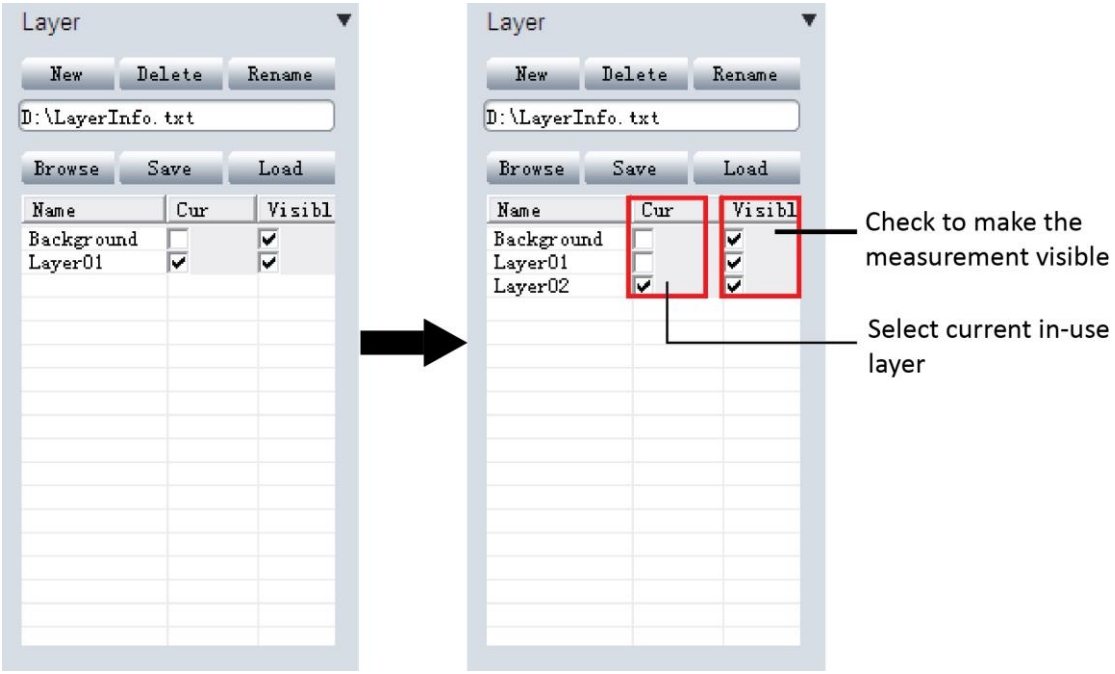


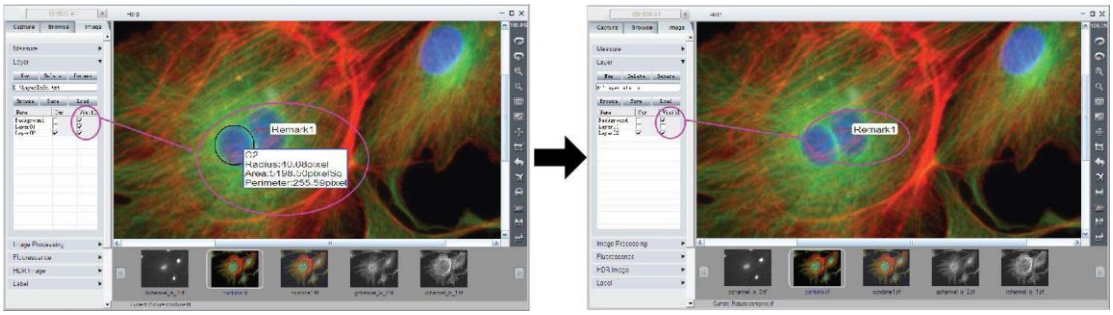


Nun können eine Reihe von Messungen auf unterschiedlichen Ebenen angewandt werden. Sie können die Ebene, die beobachtet werden soll, auswählen.

Wenn [Cur] ausgewählt wurde, bedeutet dies, dass die entsprechende Ebene derzeit angezeigt wird. Wählen Sie einen anderen [Cur], um zwischen den verschiedenen Ebenen zu wechseln. In der Spalte [Visible] bedeutet das ausgewählte Kontrollfeld, dass alle Messungen in den entsprechenden Ebenen auch in der aktuellen Ebene

angezeigt werden. Durch Abwählen des Kontrollfeldes wird die entsprechende Messung in der aktuellen Ebene unsichtbar.



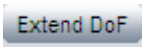


- Klicken Sie auf [Browse], um den Ordner zum Speichern der Datei auszuwählen und geben Sie den Dateinamen ein. Klicken Sie anschließend auf [Save], um die Informationen der aktuellen Ebene in der Textdatei zu speichern. Die Informationen der Ebene werden als "LayerInfo.txt" standardmäßig gespeichert.
- Klicken Sie auf [Browse], um die Datei mit Informationen einer Schicht zu finden. Klicken Sie auf [Load], um die Informationen der Ebene in das aktuelle Bild zu laden.

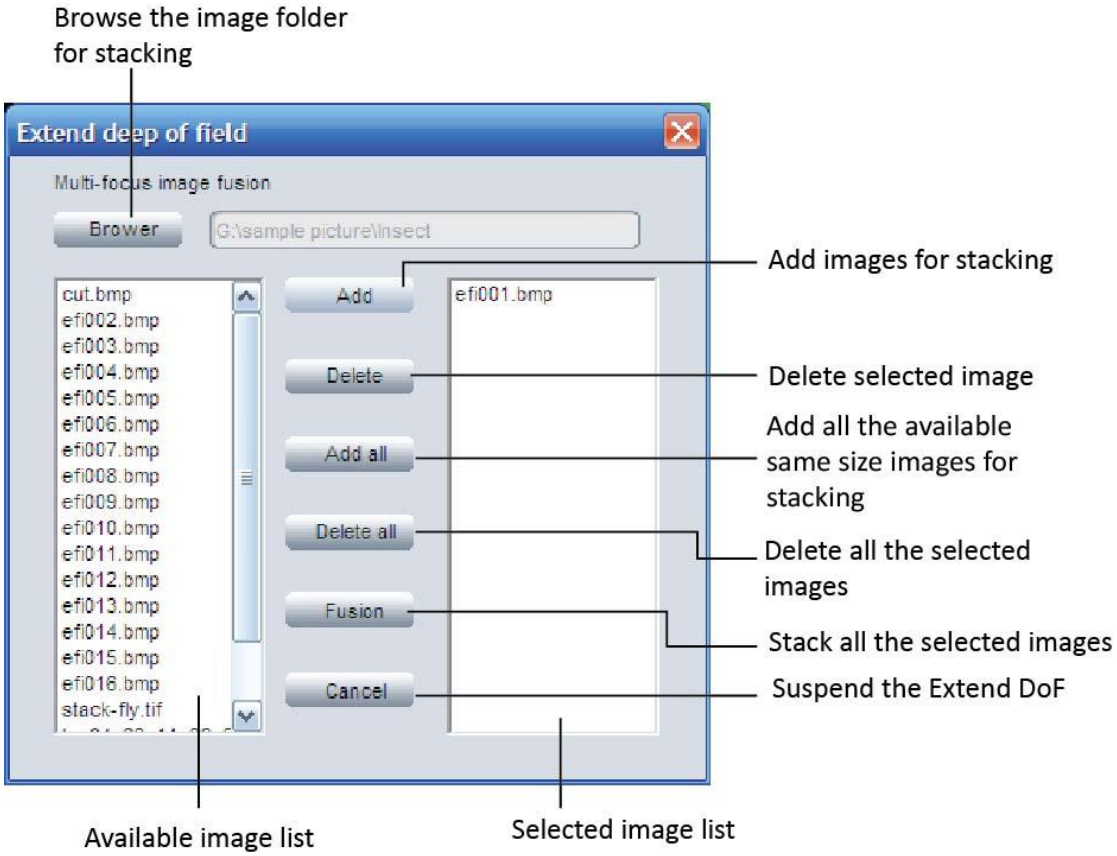
Anhang 3: erweiterte Funktionen

Erweiterte Tiefenschärfe

Die Erweiterung der Tiefenschärfe kombiniert mehrere Bilder, um eine Schärfe zu erzeugen. Sie wird verwendet, um die Tiefe eines erscheinenden Feldes eines Bildes zu erweitern.

Drücken Sie Extend DoF (Erweiterung DOF) 

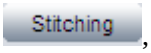
, um das Dialogfenster, das Sie unten sehen, anzuzeigen. Wählen Sie die entsprechenden Bilder und wenden Sie die Funktion an.



- Blättern Sie durch den Ordner, in dem sich die Bilder, die man vereinen möchte, befinden.
- Alle im Ordner enthaltenen Bilder werden auf der linken Seite aufgelistet. Klicken Sie auf ein Bild und das Bild wird blau markiert.
- Klicken Sie auf [Add], um das markierte Bild auf der rechten Seite hinzuzufügen (es werden die für die Verbindung zu verwendenden Ausgangsbilder angezeigt).
- Die Taste Add all (Alle hinzufügen) erlaubt das Hinzufügen aller Bilder derselben Größe auf der linken Seite als Ausgangsbilder auf der rechten Seite mit nur einem Klick.
- Klicken Sie auf [Fusion], um alle ausgewählten Quellbilder zu stapeln und ein Bild mit einer erweiterten Tiefenschärfe zu erhalten.

Wenn ein falsches Bild als Quelle für die Vereinigung ausgewählt wurde, reicht ein Klick auf dieses und anschließend auf [Delete], um es zu entfernen. [Delete all] entfernt alle ausgewählten Bilder

Image stitching

Klicken Sie auf 

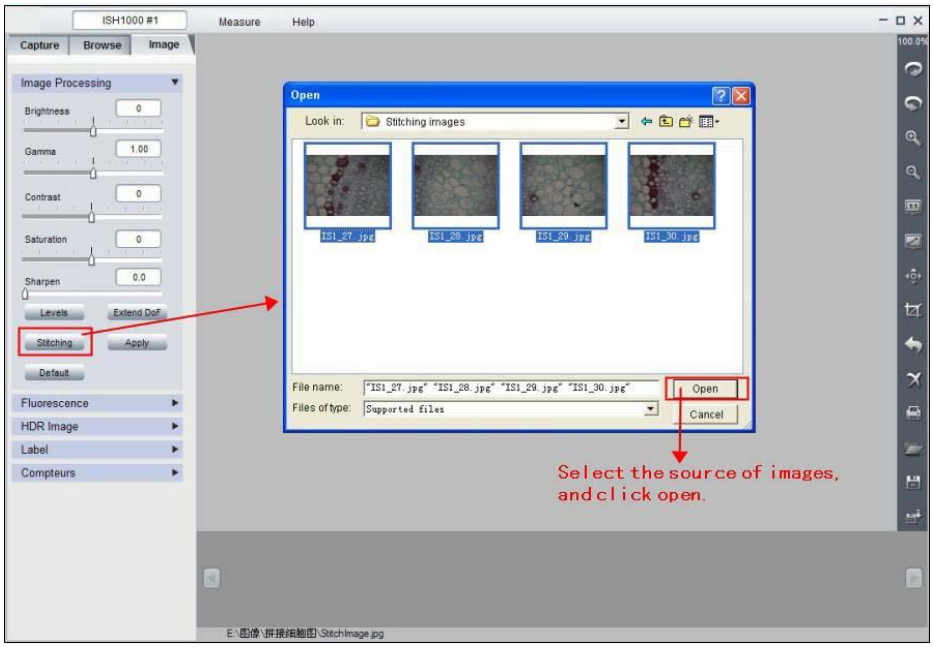
, um die Konfiguration für das Nebeneinanderstellen von Bildern anzuzeigen.

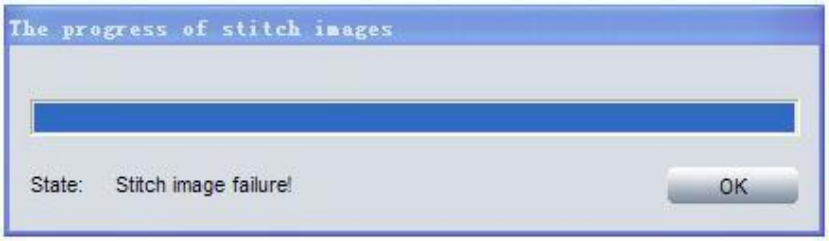
Diese Funktion stellt mehrere Bilder mit überlappbaren Blickfeldern nebeneinander, um ein größeres Panoramabild oder ein Panoramabild mit einer hohen Auflösung zu erstellen.

1) Klicken Sie auf [Open], um die Ausgangsbilder für das Nebeneinanderstellen anzuzeigen. Wählen Sie alle Ausgangsbilder und öffnen Sie sie.

2) Klicken Sie auf [Stitching], um das Nebeneinanderstellen aller Ausgangsbilder zu beginnen.

3) Klicken Sie auf [Save], um das Verbindungsbild im selben Verzeichnis der Ausgangsbilder mit dem Datum und der Uhrzeit zu speichern.





Wenn die Bildquelle die Anforderungen nicht erfüllt, wird eine Fehlernachricht beim Vorgang des Nebeneinanderstellens angezeigt.

Indirizzo legale del Costruttore

Europa

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http://www.vwr.com

Contenuto Confezione

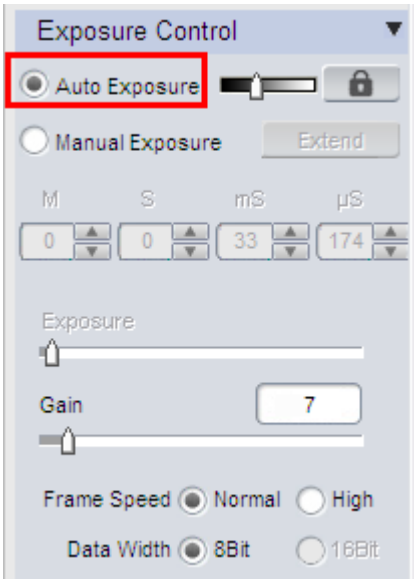
Descrizione	ECN#	Qta’
CD-ROM con drivers e software		1

Sistema consigliato

- IBM PC compatibile: Windows7 / 8 / 10 (32&64 bit)
- RAM: 512 MB , HDD: almeno 250GB
- Interfaccia USB 2.0
- Lettore CD-ROM (per installare drivers & software)

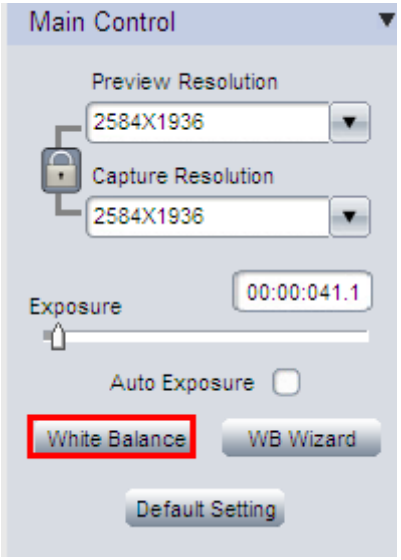
Impostazioni di IS VisiCam Image Analysis

1. Impostare **Auto Exposure** (Esposizione automatica). Osservare l'anteprima e regolare il microscopio (o l'obiettivo) per mettere l'immagine a fuoco.
Normalmente la funzione di esposizione automatica può ottenere un’anteprima con una corretta luminosità. Se anteprima risulta ancora buia, impostare manualmente il **Gain** (guadagno) al centro del cursore.



Quando si ottiene un’anteprima a fuoco, riportare il **Gain** al valore iniziale, passare alla modalità manuale di esposizione e prolungare il tempo di esposizione manualmente fino a ottenere immagini di luminosità corretta.

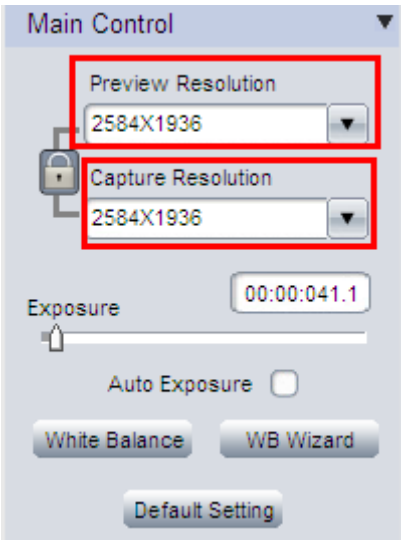
2. Fare clic sul pulsante del **White Balance** (bilanciamento del bianco) per correggere il colore dell'immagine.



Per ottenere un risultato migliore di bilanciamento del bianco, si prega di portare il vetrino su di un'area vuota e quindi premere il tasto di **White Balance**, quindi riportare indietro il vetrino con il campione. In alternativa può premere **WB wizard** (procedura guidata) e seguire le istruzioni per completare il bilanciamento del bianco

3. Cambiare risoluzione per l'anteprima e catturare immagini a differenti risoluzioni.

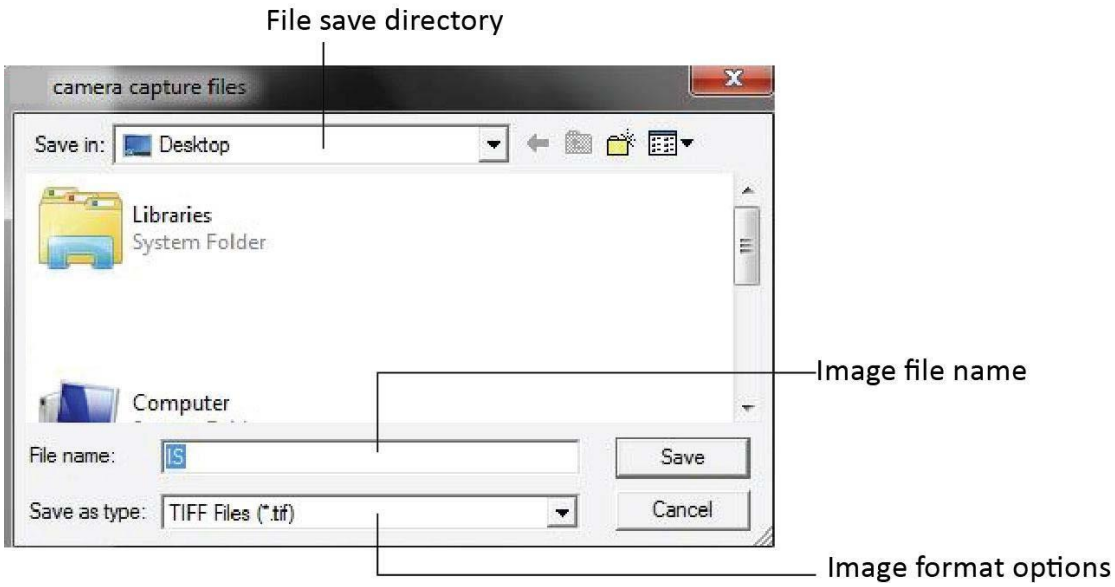
Fare clic sull'icona di blocco  per bloccare / sbloccare la risoluzione di anteprima e di cattura. Sbloccando permette di impostare diverse risoluzioni di anteprima e cattura (solitamente si usa bassa risoluzione per l'anteprima e alta risoluzione per la cattura).



4. Selezionare il pannello **File Save** (Salva File) per impostare il formato di salvataggio, directory e il nome del file.

a. Selezionare **Use File Save Config** per pre-impostare il formato di cattura immagine, directory dove salvare e nome del file.

b. Selezionare **Use File Save Dialog** per far si' che una finestra pop-up appaia per impostare il formato di cattura immagine, directory dove salvare e nome del file.

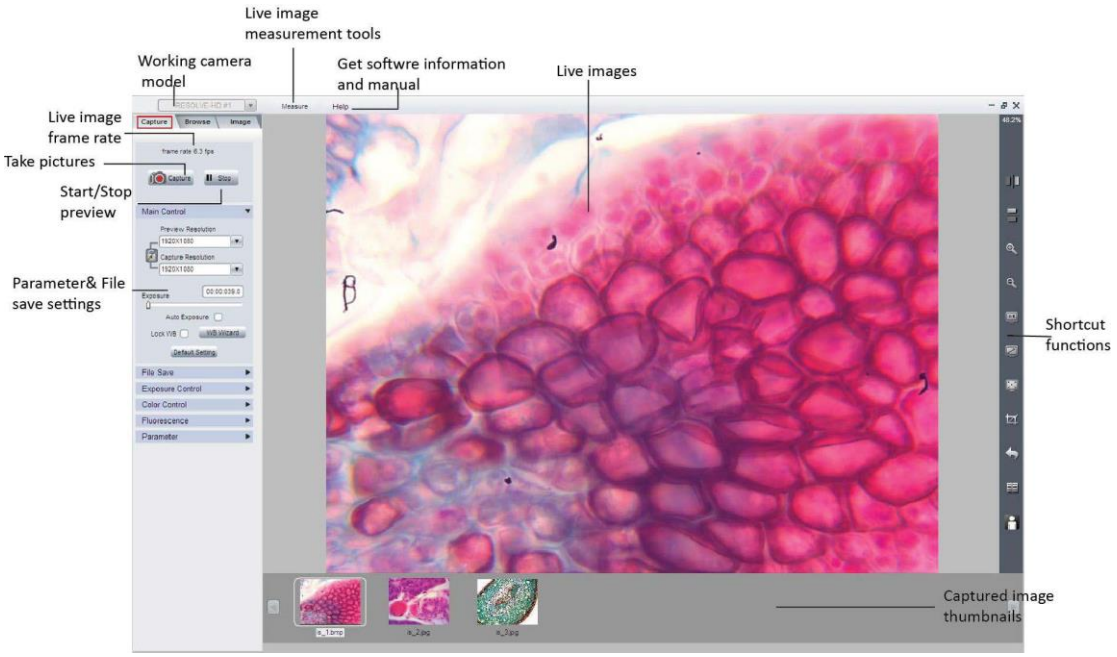


Ogni volta che si clicca sul bottone Capture (Cattura) 

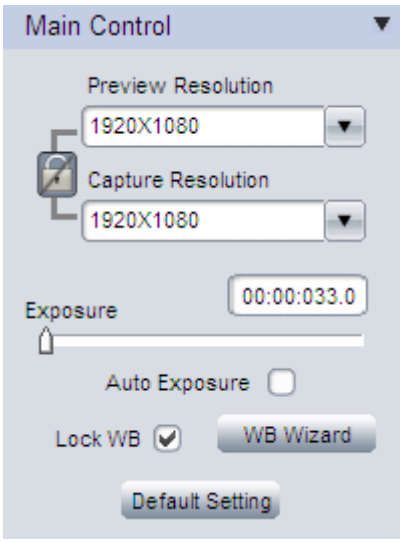
, la finestra di salvataggio file apparirà per chiedere ogni volta il nome del file, la cartella e il formato desiderato.

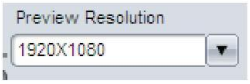
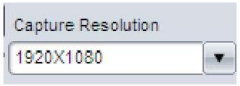
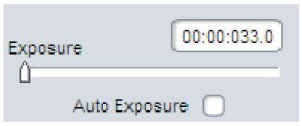
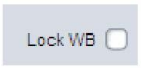
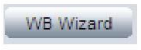
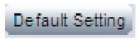
Capitolo 2: Acquisizione Immagine

Regolare I parametri della telecamera per ottenere buone immagini live, misure sull'immagine e salvare immagini e video.



Controlli di base

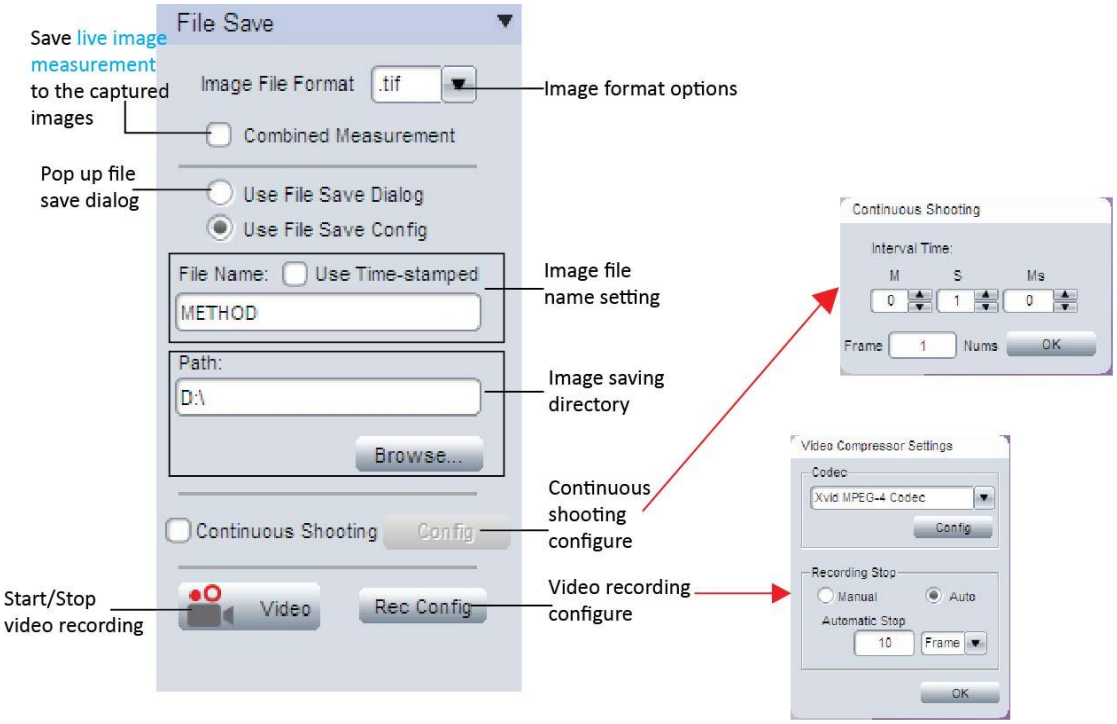


	Live image resolution	Select resolution for live image
	Captured image resolution	Select resolution for capturing
	Exposure Time	Change Exposure time to adjust image brightness. Auto Exposure mode will adjust proper brightness image automatically.
	Lock White Balance	Unchecked: Auto White Balance mode. Apply white balance calculation for every frame image. Checked: Lock the White Balance calculation result.
	White Balance Wizard	Wizard for getting better White Balance result.
	Default settings	Restore all the parameters to default value

Dopo aver impostato la luminosità delll'immagine dal vivo, si consiglia di applicare il bilanciamento del bianco per correggere il colore dell'immagine dal vivo. Per ottenere i migliori risultati di bilanciamento del bianco, si prega di seguire i seguenti passi:

1. Spostare il vetrino con il campione su di un'area vuota;
2. Deselezionare [Lock WB];
3. Quando l'immagine risulta del colore corretto, selezionare la casella di blocco [Lock WB];
4. riportare di nuovo il vetrino dove c'e' il campione.

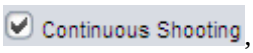
Catturare immagini e video



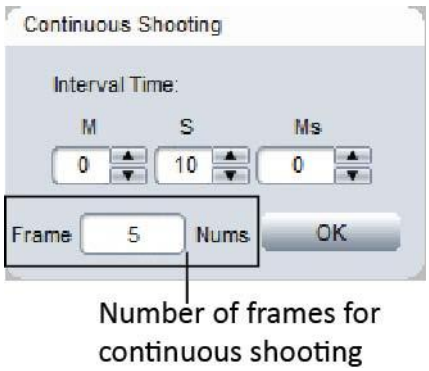
- Nel menu a discesa [File Format], sono disponibili 4 formati di file : JPEG, BMP, TIFF e RAW.

I file di immagine informato RAW contengono dati processati al minimo dalla fotocamera. Ha bisogno di essere letto da alcuni software speciali (per esempio Photoshop, imagj etc..).

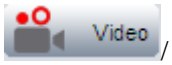
Continuous Shooting

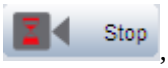
- Cliccare la casella di controllo **Continuous Shooting** [Scatto continuo] 

, il software salverà automaticamente una serie di immagini dopo che un singolo scatto viene eseguito.
- Fare clic su [Config] per impostare il numero di immagini da catturare e l'intervallo di tempo.



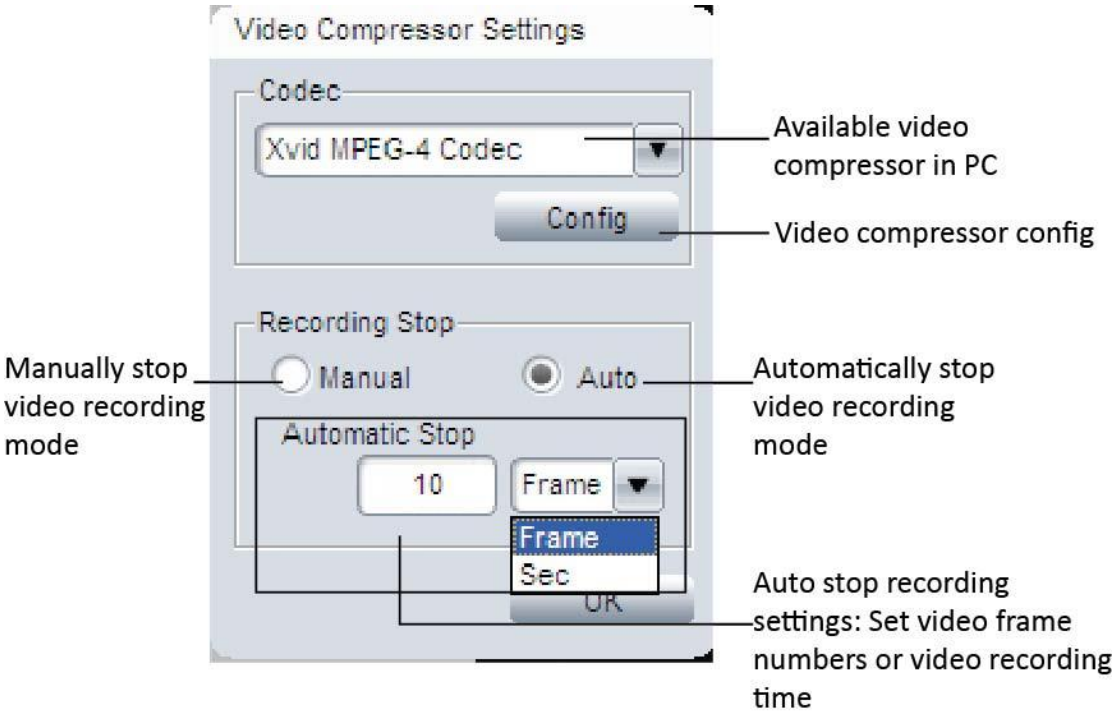
Registrazione Video

Cliccare [Video] 

/ 

, per cominciare/arrestare la registrazione del video.

Cliccare [Rec Config] per aprire la finestra di configurazione della registrazione video.

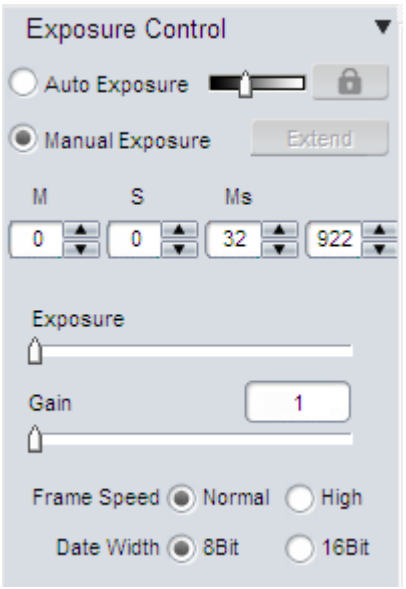


C'è il modo [Manual] e [Auto] per fermare la registrazione.

- modalità [Manual], il tasto [Video] è spinto per avviare e interrompere la registrazione.
- Modalità [Auto], pre-impostare il numero di fotogrammi o il tempo di registrazione; quandoi bottone [Video] viene spinto il software fermerà la registrazione automaticamente dopo aver salvato il numero prestabilito di fotogrammi o dopo il tempo di regisrazione pre-programmato.
- [Rec Config] >> [Codec] mostra la lista di tutti i compressori video disponibili sul PC.

Il video registrato senza alcuna compressione sarà molto grande in dimensioni. Il software cercherà automaticamente i compressori video installati sul PC.

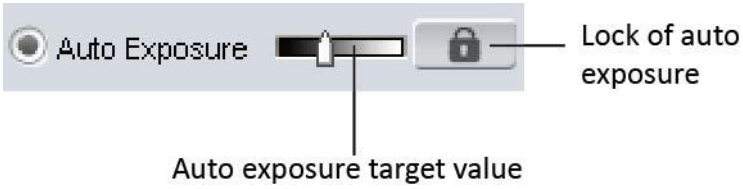
Controllo dell’esposizione



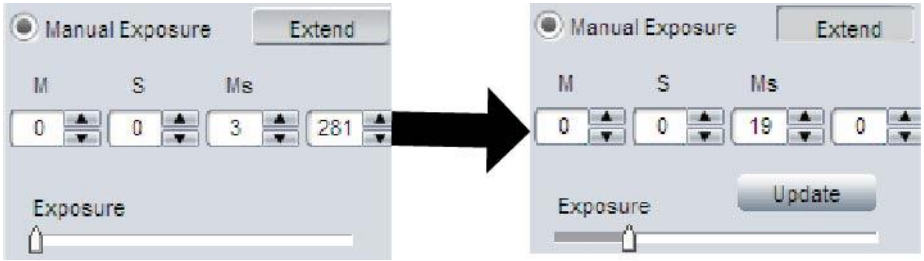
Modificare il tempo di esposizione, il Guadagno per regolare la luminosità dell'immagine. Selezionare la velocità dei fotogrammi (Frame speed) per ottenere diversi frame rate immagini per l’immagine live. Impostare la profondità dei dati a 8-bit o 16-bit per le immagini catturate

Esposizione automatica

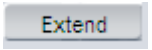
- Selezionare la casella di controllo [Auto Exposure], il software inizierà a regolare il tempo di esposizione automaticamente per ottenere la corretta luminosità delle immagini dal vivo.
- Auto exposure target value: seleziona il tempo di esposizione di riferimento per la regolazione dell'esposizione automatica.
- Lock: fermerà il calcolo dell'esposizione automatica.



Esposizione manuale



Regolare il tempo di esposizione manualmente.

[Extend] 

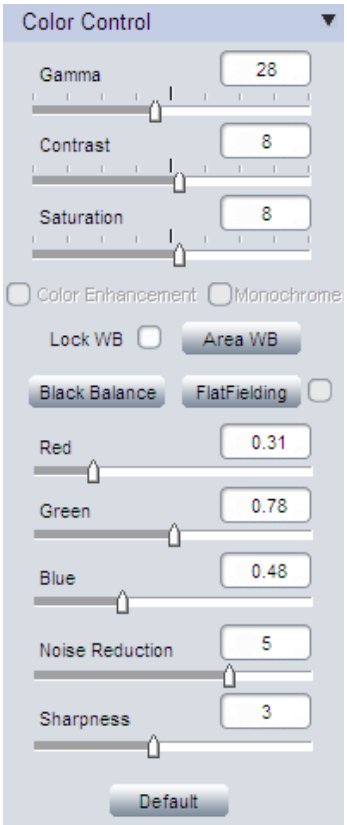
viene utilizzato per ottenere un tempo di esposizione più lungo. Questa funzione è disponibile **solo** per telecamere **CCD**. Per le altre telecamere, in particolare la fotocamera CMOS, il tempo di esposizione massimo è minore di 1 secondo, quindi [Extend] è disattivato.

[Update] Update appare dopo che si seleziona [Extend]. Clicca su di esso per fermare il tempo di esposizione precedente e riavviare immediatamente quello nuovo. Per le applicazioni con esposizioni lunghe, si consiglia vivamente di usare [Update] per avviare una nuova impostazione. Ciò contribuirà ad ottenere più in fretta l'immagine con la nuova esposizione. Se il tempo di esposizione è inferiore a 2-3 secondi, non è necessario usarlo.

Guadagno, velocità dei frame e profondità del dato (data Width)

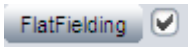
Gain		Increase the power of the image data. Higher gain gives brighter images, but also makes the noise signal more obvious.
Frame Speed	High Speed	Corresponding to high pixel clock. Gives faster frame rate.
	Normal Speed	Offer lower frame rate than High Speed, but gives longer maximum exposure time.
Data Width	8-bit	8-bit images use 2^8 = 256 gray levels to represent image details.
	16-bit	16-bit images use 2^16 gray levels to represent image details. ONLY available for CCD & Discovery series cameras in .Tiff and .Raw formats.

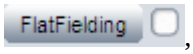
Controllo del colore



Funzione Flat Fielding

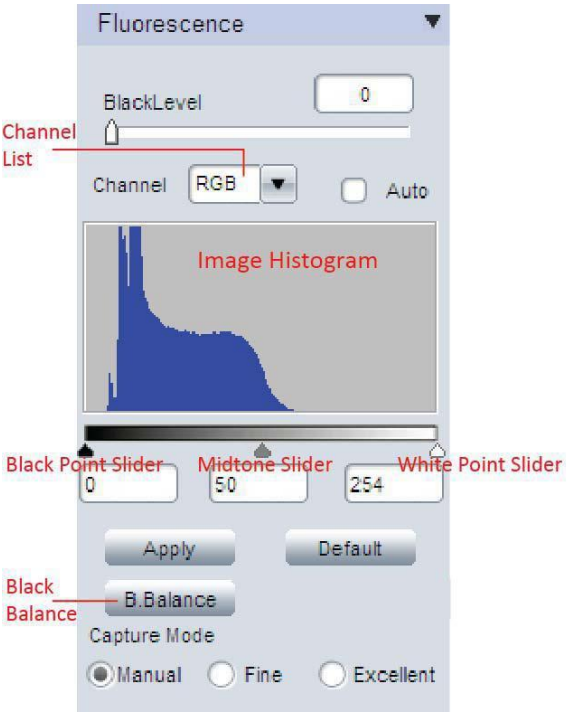
La funzione di Flat Fielding viene usata per correggere una luminosità non uniforme dello sfondo dell'immagine.

- Fare clic su [FlatFielding] 

per avviare il calcolo dei parametri di uniformità dello sfondo e applicarli all'immagine dal vivo.
- Quando la casella è deselezionata 

, i parametri di uniformità dello sfondo non vengono applicati all' immagine dal vivo.

Per ottenere un risultato migliore di uniformità dello sfondo, spostare il campione prima su di un'area vuota, ri-applicare il [FlatFielding], quindi spostare nuovamente il campione.



Quando l'illuminazionecambia, rifare il [FlatFielding] per correggere la luminosità dello sfondo non uniforme.

Parametri per la Fluorescenza

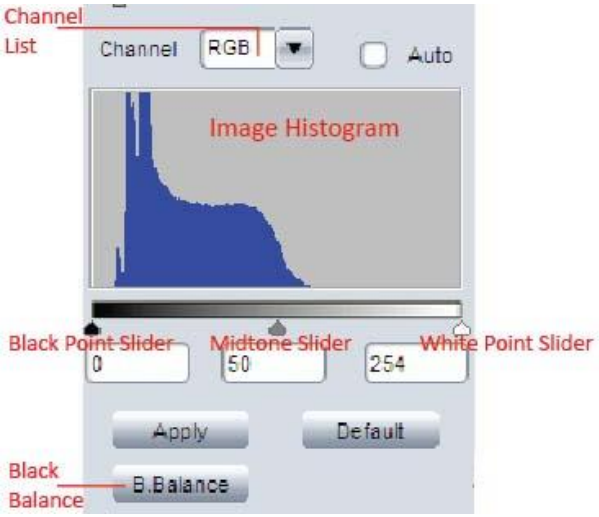
Incluso nel software ci sono parametri utili per l'uso in applicazioni con fluorescenza o in generale con poca luce. Aiutano ad ottenere immagini migliori più facilmente e più velocemente.

Livello di nero

La funzione Black Level (livello del nero) definisce il livello di luminosità nella parte più scura dell'immagine. Con immagini con scarsa illuminazione, aiuta a vedere più dettagli nelle zone scure.

In applicazioni con scarsa luminosità, di solito c'è bisogno di un tempo di esposizione abbastanza lungo per ottenere immagini corrette. Se si imposta un tempo di esposizione lungo all'inizio, potrebbe essere necessario molto tempo per trovare il campione da osservare e ottenere una buona corretta (attendere il lungo tempo esposizione per ottenere una nuova immagine, regolare, quindi attendere nuovamente...). All'inizio, durante la ricerca dell'immagine da osservare, si consiglia di impostare un tempo di esposizione breve, ma aumentare il guadagno (Gain) e il livello di nero. Dopo aver individuato l'immagine da osservare, si può ridurre

il valore del guadagno e del livello di nero, e aumentare quindi il tempo di esposizione. Ciò aiuterà in una migliore e più veloce acquisizione dell'immagine.



Livelli

L'uso della strumento levels (livelli) può muovere e allungare i livelli di luminosità nell'istogramma usando tre componenti principali: un punto nero, un punto bianco e il cursore dei mezzitoni

Channel List (Elenco canali): consente di scegliere se modificare i canali RGB o uno dei tre canali di colore individualmente (rosso, verde e blu).

[Auto] casella di controllo: regola automaticamente i livelli nell'immagine dal vivo.

Regolazione manuale dei livelli dell' immagine.

Spostare il cursore del punto di bianco verso sinistra, è in grado di rivelare alcune informazioni nella zona scura. Se si sposta il cursore del punto nero verso destra, si riveleranno informazioni nella zona luminosa.

Dopo aver regolato i livelli, cliccare Apply per confermare l'impostazione. Se avete bisogno di tornare all'immagine originale, fare clic su Default per ripristinare l'immagine.

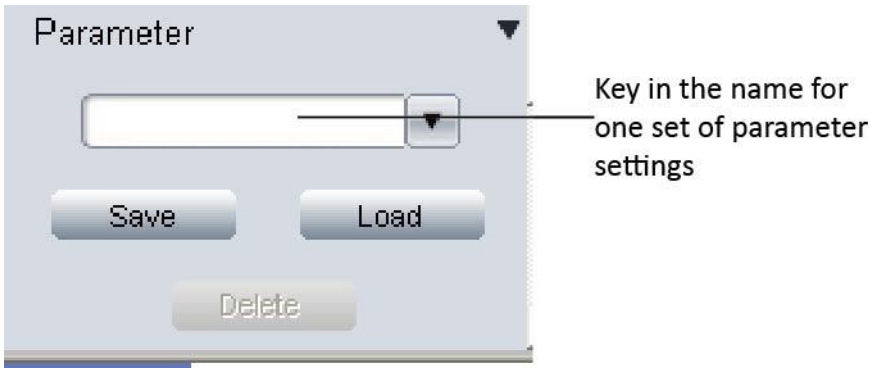
[Black Balance]: Dà alla telecamera un riferimento di " vero nero". Necessaria SOLO in applicazioni di dark field (campo oscuro).

Modalità Cattura

Ci sono tre modi di cattura sviluppati specialmente per le applicazioni in fluorescenza.

Manual	Capture the image with current parameter settings
Fine	Automatically reduce the gain and extend the exposure to get the same brightness image. (Lower gain will give lower noise level images)
Excellent	Automatically save 10 images with current settings and then get an average image. (It needs to take a while to capture an image in this mode.)

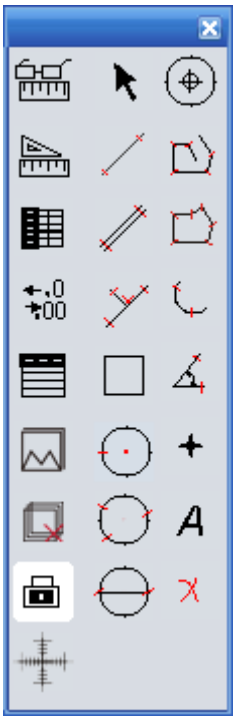
Gruppi di parametri



Salvare set di parametri per le diverse applicazioni. I parametri memorizzati comprendono il tempo di esposizione, guadagno, velocità dei fotogrammi, la profondità dei dati, gamma, contrasto, saturazione, stato di miglioramento del colore, bianco e nero, il guadagno RGB e il livello del nero. Si possono salvare fino 20 set di parametri.

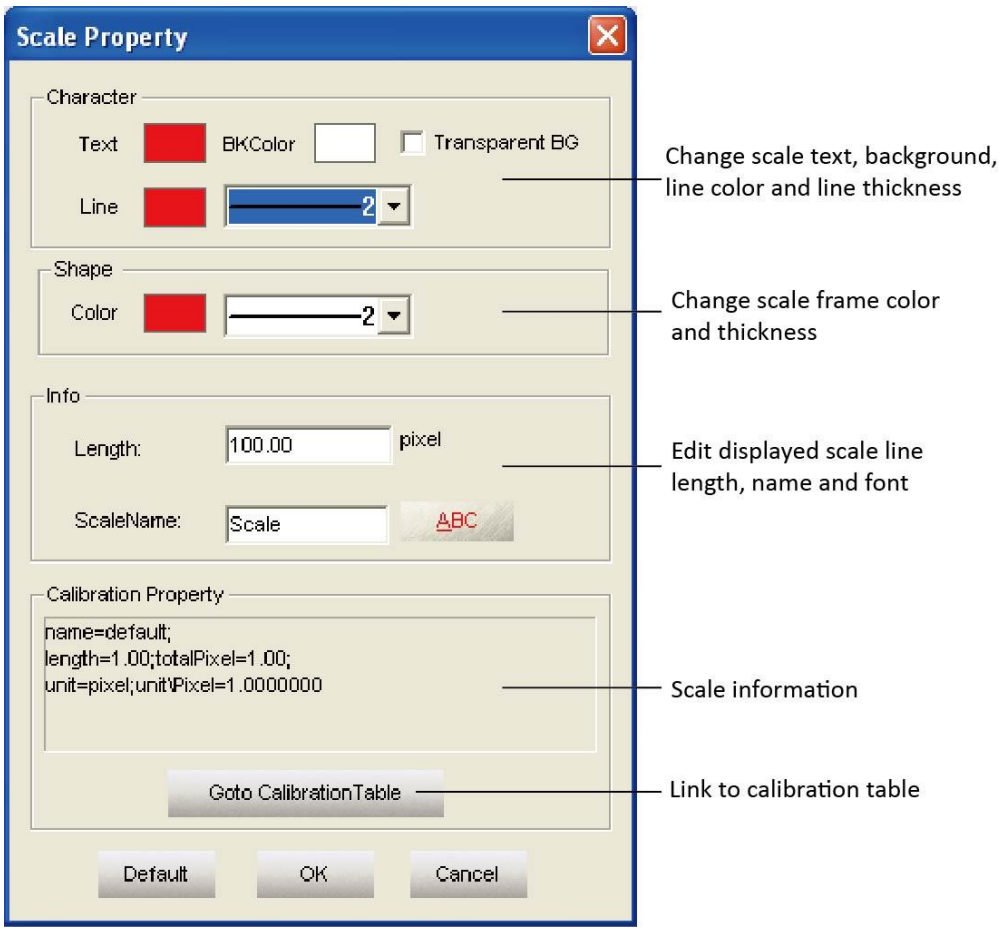
Capitolo3: Misurazioni su immagini live e acquisite

Clicca su [Measure] in alto al software per visualizzare gli strumenti di misura



	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
	Polyline	Measure polyline length.
	Polygon	Measure polygon area and perimeter.
	Arc	Measure a curve angle, radius and length.
	Angle	Measure the angle
	Count	Counter. Manually 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.

Modicare la scala delle linee

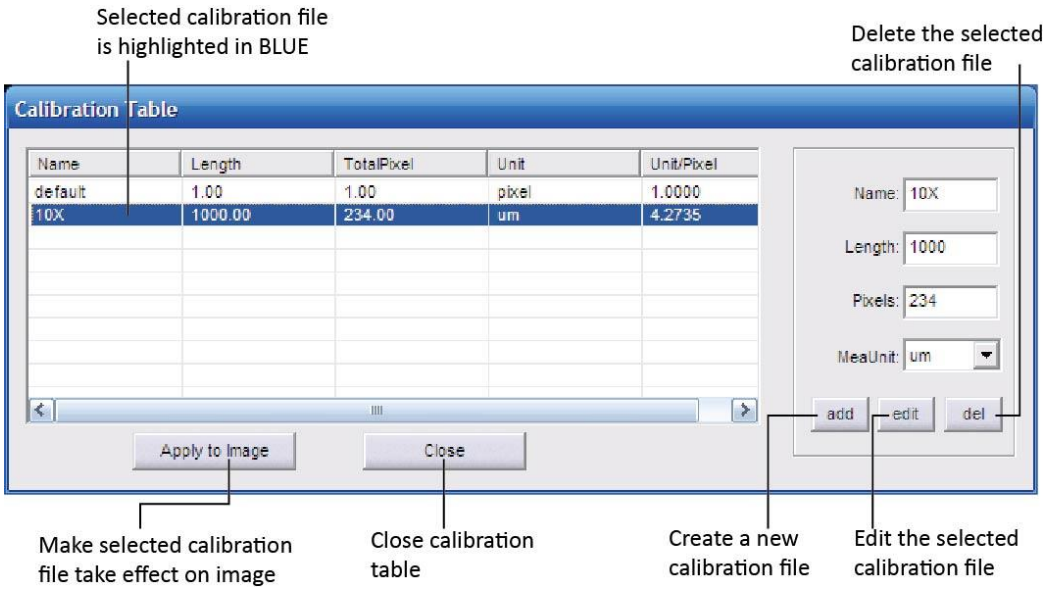


Cliccare due volte sulla scala per vedere le sue proprietà e modificarle eventualmente.

Creare un file di calibrazione

Per misurare la reale misura dei campioni, deve essere creata per prima una tabella corrispondente di calibrazione. Consultare l'Appendice 1 per avere più dettagli sulla calibrazione delle misure.

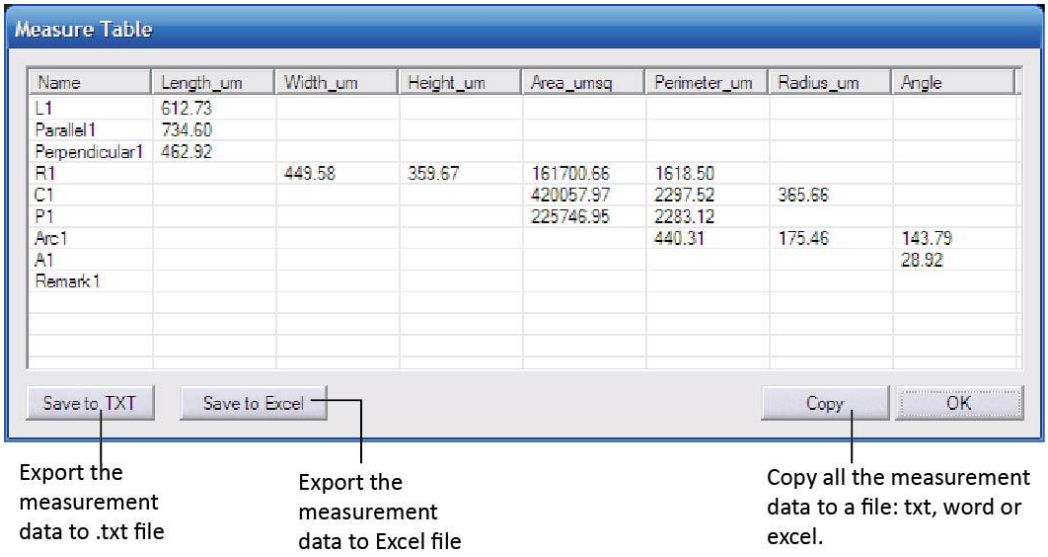
Tabella di calibrazione



- Fare clic su  Calibrate Table [Tabella Calibrazione] per aprire la tabella di calibrazione.
- Selezionare il file di calibrazione corretto per la corretta misura sull'immagine corrente.

Utilizzando il file di calibrazione sbagliato, si avrà un risultato sbagliato della misurazione. Assicurarsi che il file di calibrazione è corrispondente all'immagine corrente. Per questo motivo, è utile dare un nome al file di calibrazione con le impostazioni di ripresa o in nome dell' obiettivo.

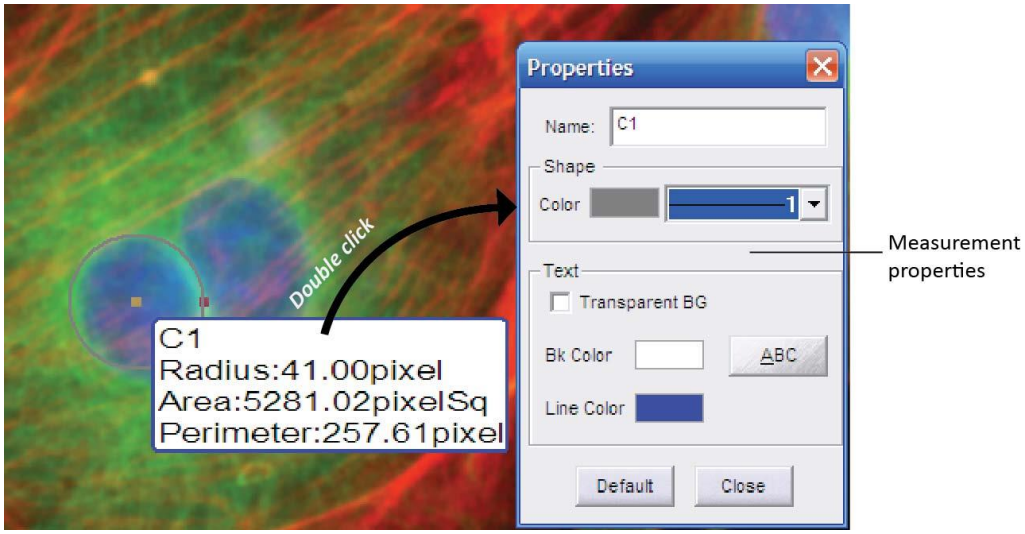
Elenco delle misure



Tutte le misurazioni sono elencate nella Measurement List [Elenco di misurazioni]. Il software consente di esportare i dati di misura su un file TXT o Excel.

Misurazione

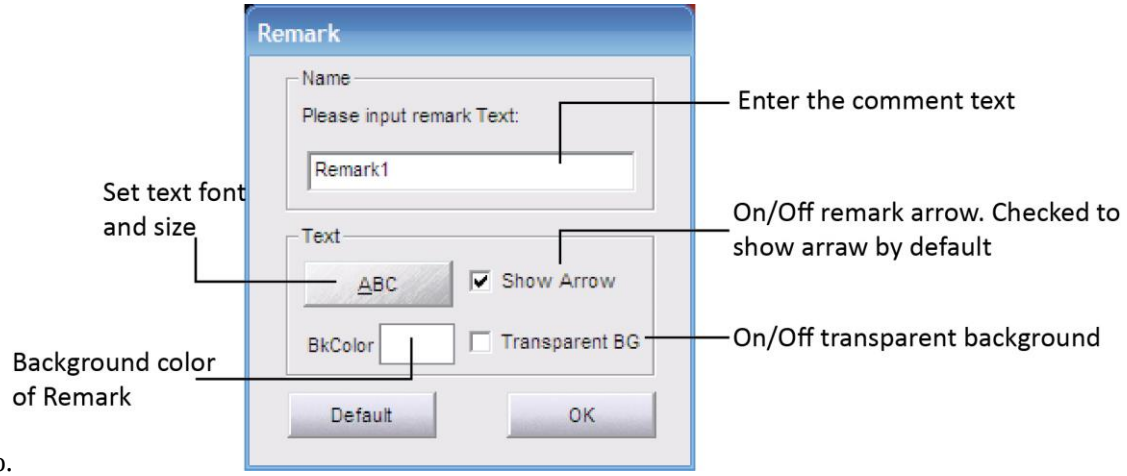
Il software permette di fare misure con linea, parallele, perpendicolari, rettangolo, cerchio, poligono, arco e di misurare angoli. La funzione Count (conteggio) permette di contare manualmente oggetti. Inoltrela funzione Annotate (Annotazione) permette di aggiungere commenti sulle immagini.



Fare doppio clic sui dati di misura per visualizzare la finestra di misura di configurazione. Consente di modificare il nome dei dati, il colore, lo spessore, il colore di fondo e il tipo di carattere.

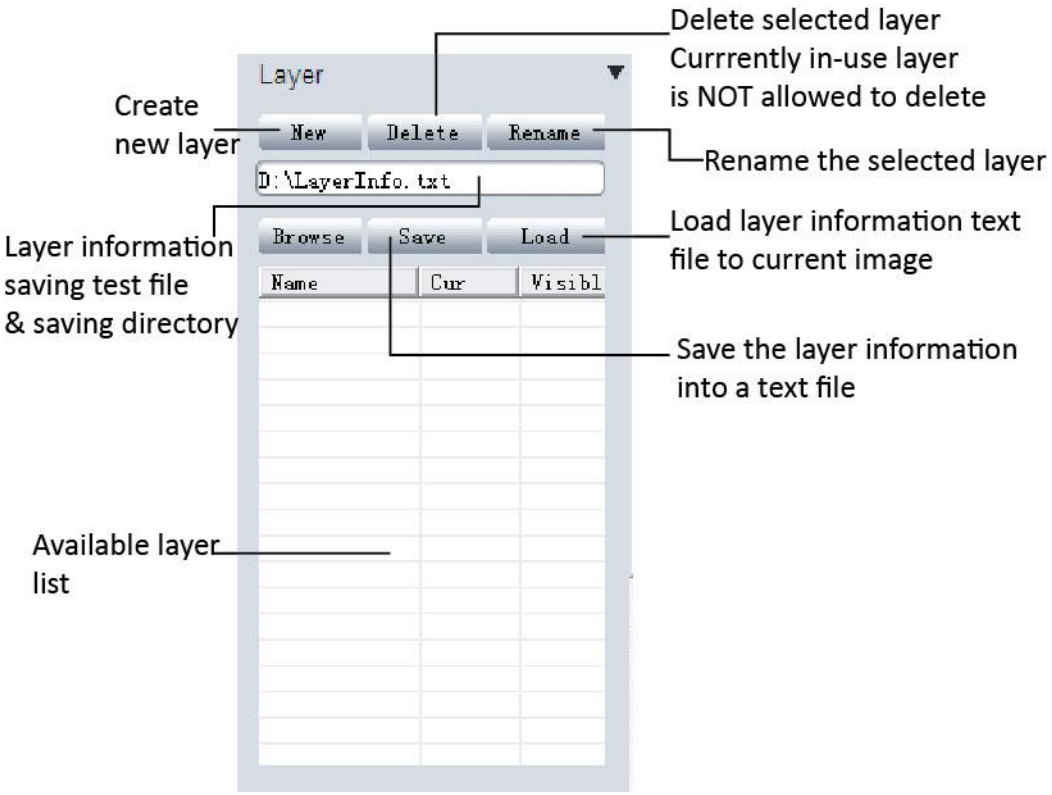
Annotare

Selezionare [Annotate] e cliccare sull'area dell'immagine dove si vuole aggiungere un



commento.

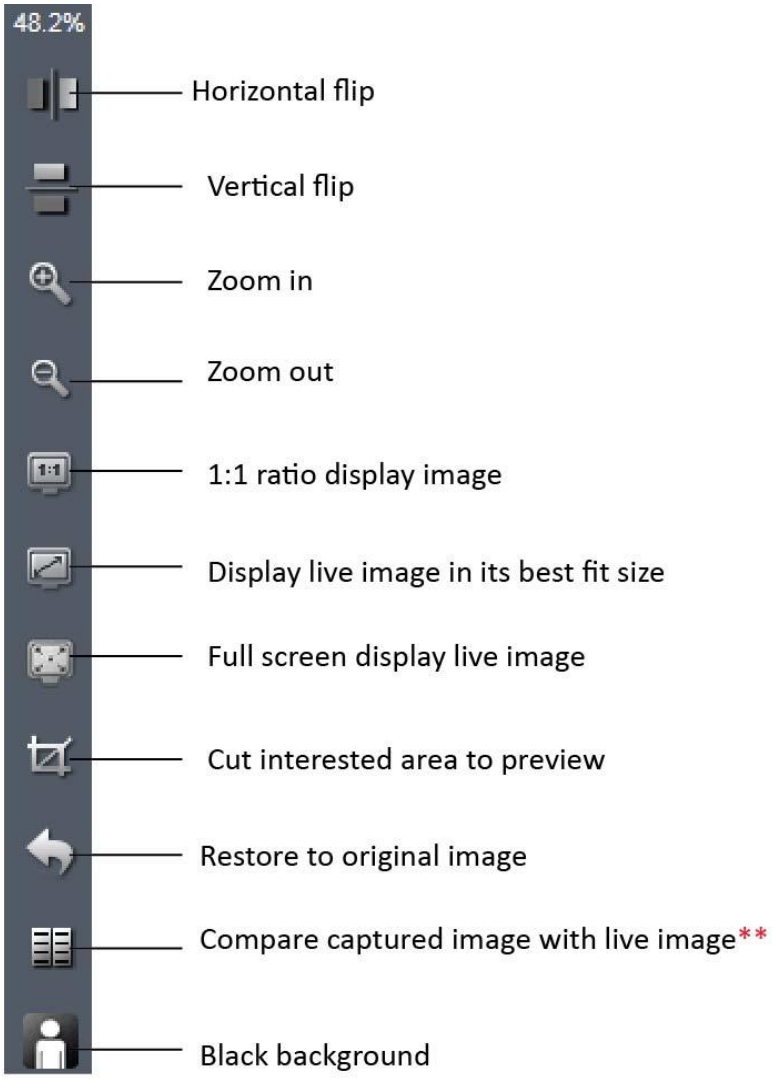
Livelli



Quando è necessario fare delle misure in blocco sulle immagini, alcune diverse misurazioni sarebbero sovrapposte rendendo la misura molto difficile. La funzione layer consente di creare più livelli per fare misure differenti e renderà semplice l'aggiunta di un gran numero di misure sull'immagine. Si consulti l' Appendice 2 per avere maggiori dettagli.

Collegamenti veloci (immagine Live)

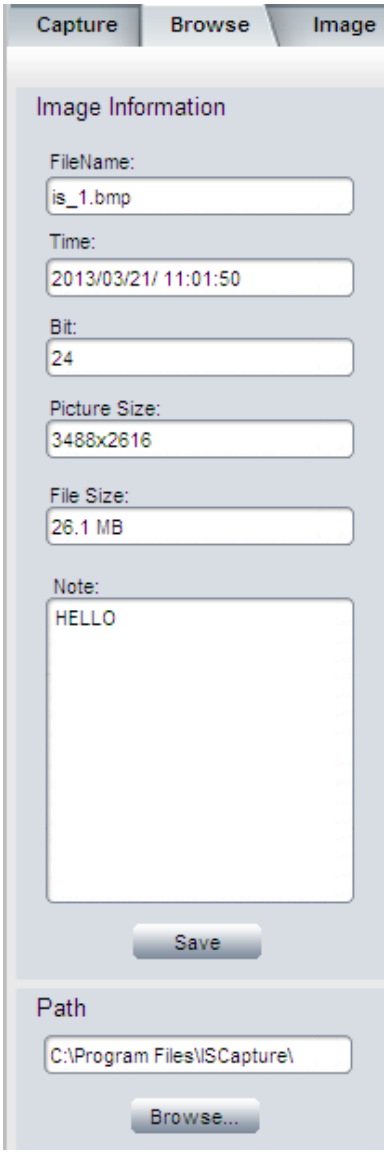
Sul lato destro della finestra dell'immaginve live, ci sono alcuni collegamenti veloci per elaborare l'immagine dal vivo velocemente.



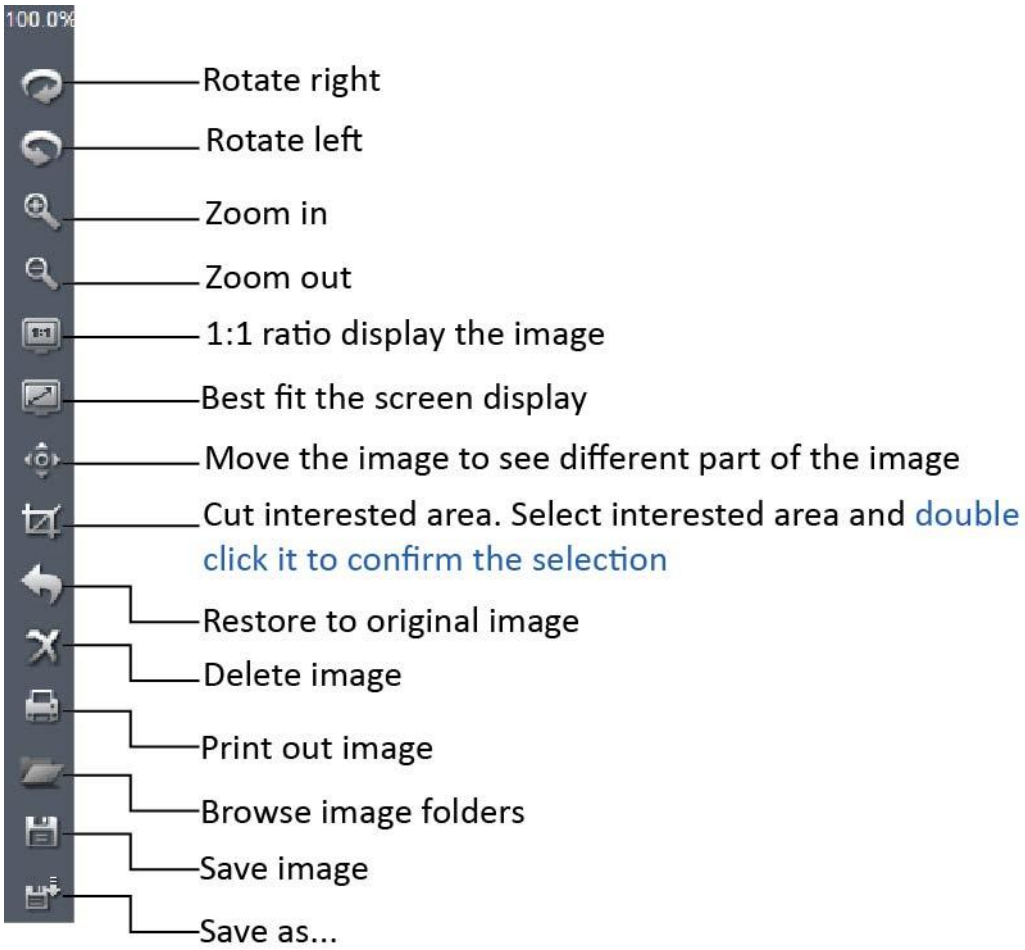
** Compare function: Live image will be displayed on the left side. Click on the taken image thumbnail to select it to compare with live images (Chosen compared image will be enhanced in gray-white frame).

Capitolo 4: gestione immagine

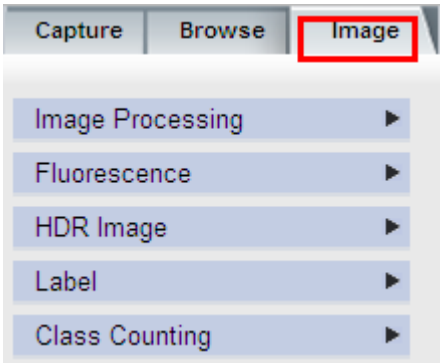
Visualizzare le immagini nel pannello [Browse], visualizza il nome del file dell'immagine, il tempo di cattura, la profondità di colore (bit), la risoluzione e le dimensioni dell'immagine. Esso permette anche di aggiungere commenti ad ogni singola immagine. Quando si visualizza l'immagine successivamente, il software mostrerà quindi anche il commento.



Il software fornisce alcune funzioni rapide sul lato destro in modalità ***Browse*** o ***Image***.



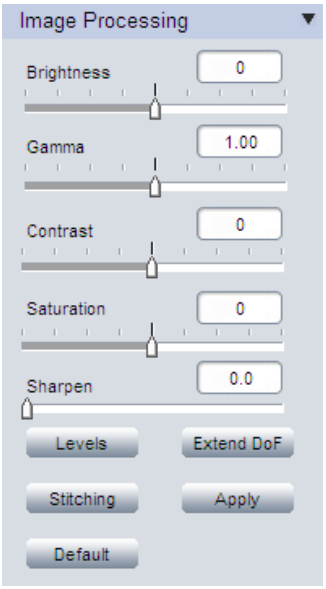
Capitolo 5: elaborazione dell'immagine



In questa sezione il software prevede funzioni avanzate di elaborazione dell'immagine e permette di fare misure sulle immagini acquisite.

Elaborazione immagini (Image processing)

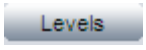
Fornisce funzioni di base di elaborazione delle immagini catturate e consente inoltre funzioni avanzate aggiuntive come extended Depth of Focus (profondità di fuoco estesa) and image stitching (unione immagini).



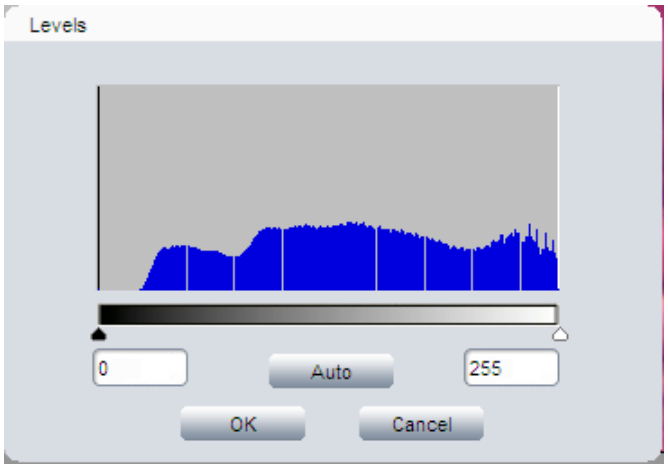
Brightness	Adjust captured image brightness. Default brightness = 0
Gamma	Adjust captured image gamma. Default gamma = 1.00
Contrast	Adjust contrast. Increase the contrast, the shadows become darker and the highlights brighter. Decrease the contrast, the highlights grow dim and the dark areas lighten up
Saturation	Adjust the color saturation. Fully-saturated colors are very bright, while low saturation are grayish.
Sharpen	Adjust the image sharpness. Sharpness is the contrast on the edges. Sharpening increases the bright and dark lines on edges.
Levels	Adjust image levels. Get more details in [Fluorescence]>>[Levels]
Extend DoF	Extend the Depth of Focus (DoF)
Stitching	Image stitching. Combine multiple images with overlapping fields of view to produce a segmented panorama or high-resolution image.
Default	Restore Brightness, Gamma, Saturation, Sharpen and levels back to the default value
Apply	Confirm to apply all the settings to the image.

Dopo aver cliccato [Apply], tutte le impostazioni sono applicate all'immagine. NOTA BENE: una volta che scegli questo, NON può ritornare all'immagine originale.

Livelli

Premi [Levels] 

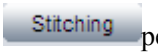
per ottenere l'istrogramma dell'immagine. Permette di aggiustre i livelli dell'immagine. La regolazione dei livelli è la medesima di quella sull'immagine dal vivo. Più dettagli sotto [Capture]-->> [Fluorescence].



Aumentare la profondità di fuoco

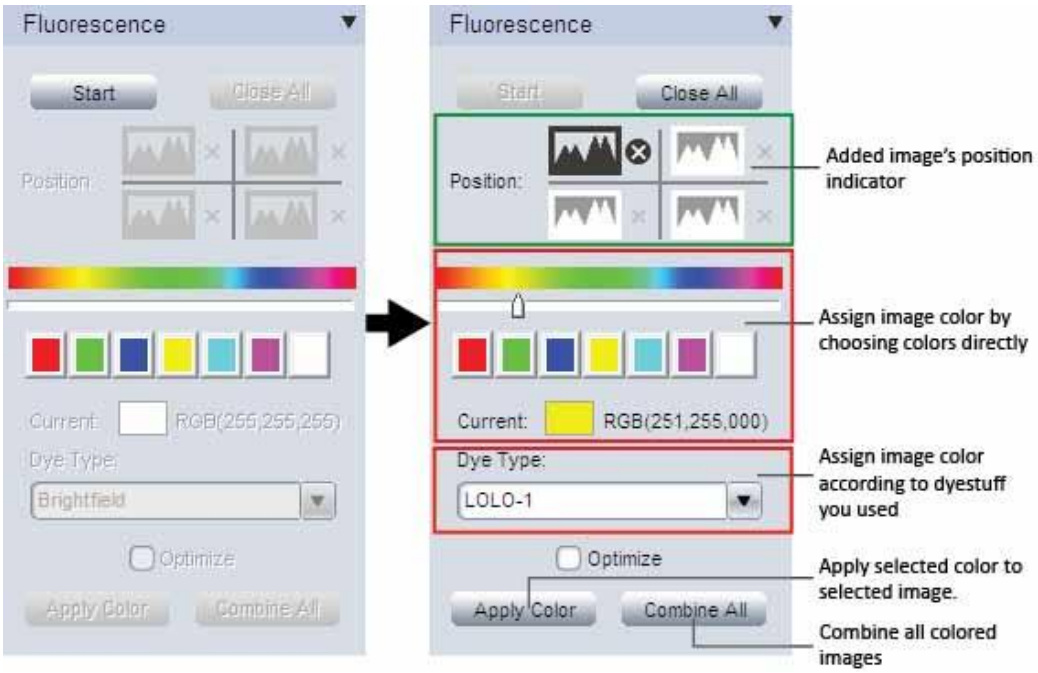
Estendere la profondità di fuoco combina più immagini per crearne una a fuoco. E' utilizzata per estendere la profondità di fuoco apparente di un'immagine. Consulta l' Appendice 3: Funzioni avanzate, per avere maggiori dettagli.

Accostamento di immagini

Clicca su 

per ottenere la configurazione per l'accostamento di immagini. Tale funziona permette di accostare più immagini con campi di vista che si sovrappongono per produrre un'immagine più ampia (panorama) e ad alta risoluzione. Consulta l' Appendice 3: Funzioni avanzate, per avere maggiori dettagli.

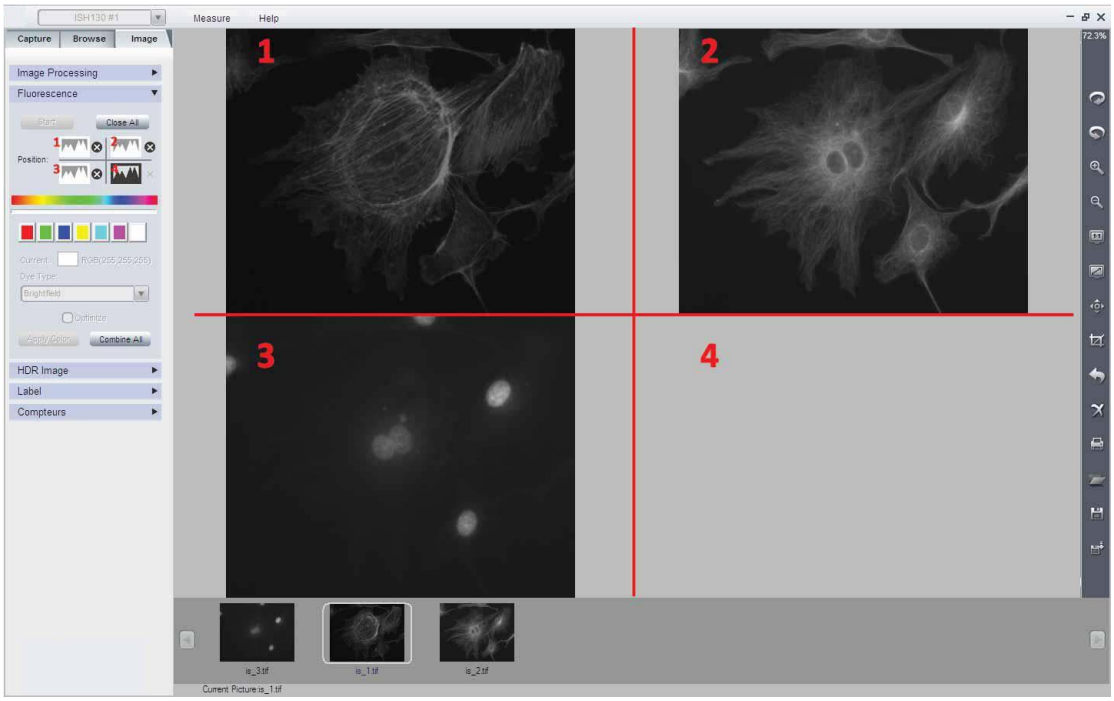
Fluorescenza



Questa funzione viene utilizzata per assegnare colori diversi ad immagini in fluorescenza e combinarle insieme in un'unica immagine.

Passo 1: Aprire nel software le immagini che devono essere unite, quindi fare clic su [Start] per avviare l'unione.

Passo 2: Fare clic sulle miniature delle immagini per aggiungere le immagini corrispondenti. L'indicatore di posizione dell'immagine mostra la posizione delle immagini aggiunte. Massimo 4 immagini possono essere aggiunte per la combinazione in fluorescenza.



Passo 3: Fare clic su un indicatore dell' immagine per iniziare ad applicare il colore per essa.

① Clicca su un indicatore sull'immagine per selezionarla (quello selezionato sarà di colore scuro, quelle non selezionate saranno in grigio chiaro).

② Assegnare il colore all'immagine selezionata.

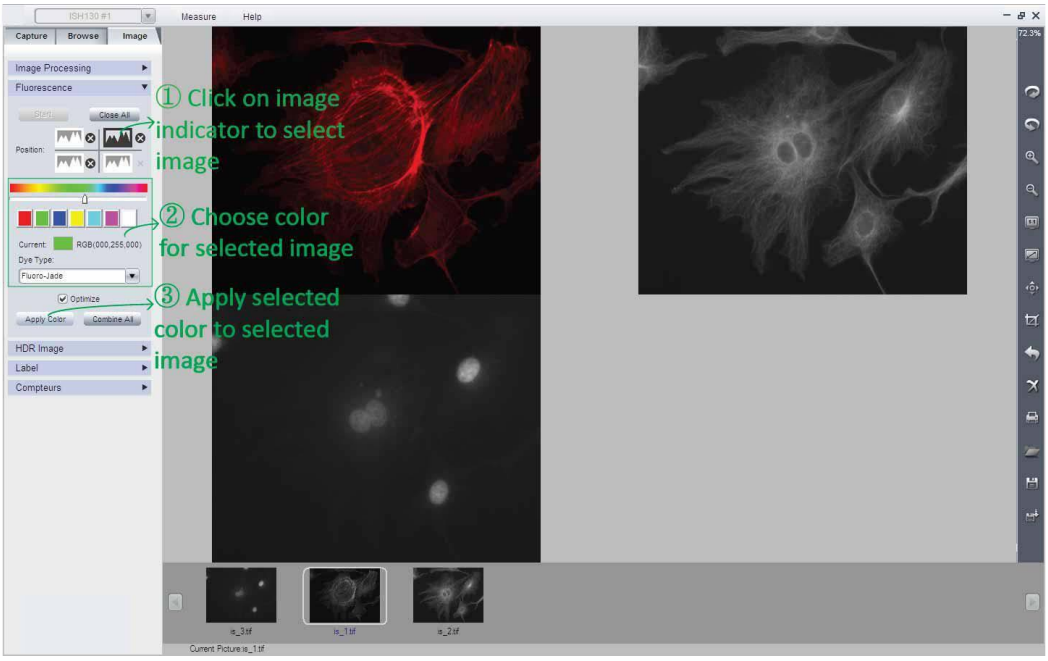
Ci sono due modi per l'assegnazione del colore:

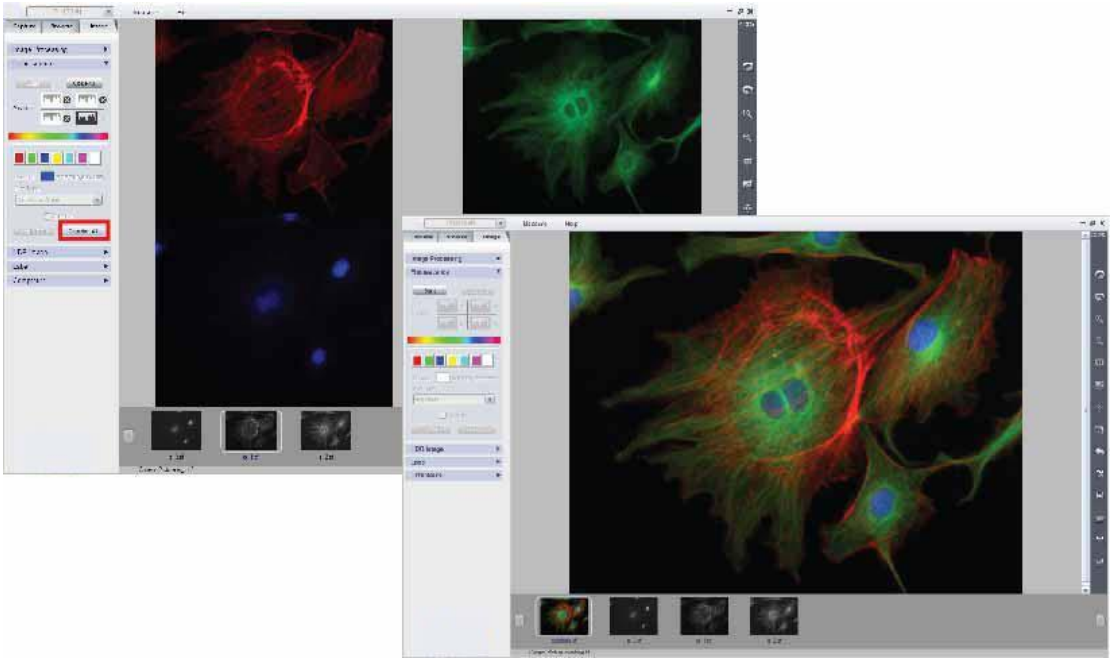
a. Fare clic sul colore preferito o il cursore per sceglierlo.

b. Assegnare il colore secondo il colorante di fluorescenza dal menu a discesa [Dye Type].

③ Fare clic sul pulsante Apply color (Colore Applica colore) per aggiungere il colore selezionato all'immagine.

Passo 4: Fare click su [Combine All] per combinare tutte le immagini colorate.





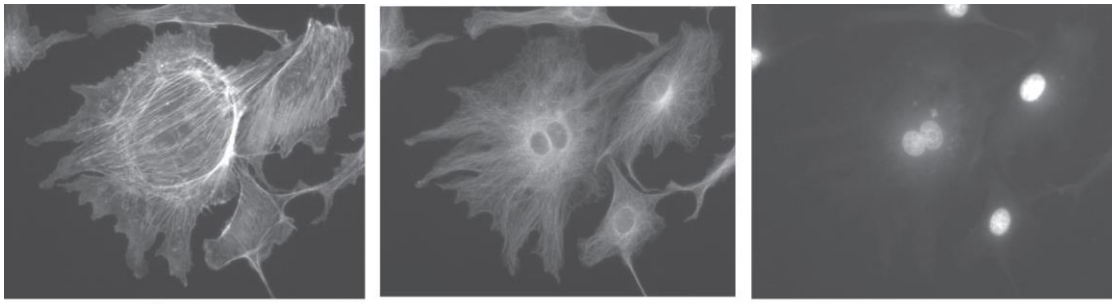
Si raccomanda Optimize di selezionare la casella di controllo Optimize durante la fase di combinare. Ottimizzerà lo sfondo dell'immagine per ottenere uma migliore immagine. Se tale funzione non è selezionata, l'immagine che si crea conterrà tutta l'informazione originale. Nessun processo extra è applicato ai dati dell'immagine.

Dopo aver creato l'immagine in fluorescenza,

la funzione [Sharp] in [Image Processing] può aiutare ad avere immagini più nitide e a vedere più dettagli.

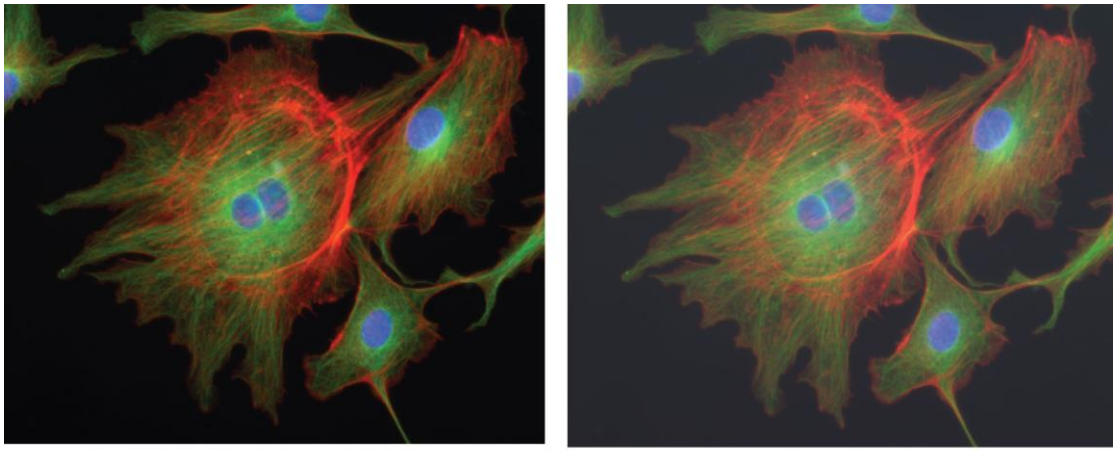
Se aggiungi un'immagine sbagliata o un colore sbagliata all'immagine selezionata, basta fare click sulla piccola croce dietro ogni indicatore per cancellarla. Se vuole cancellare l'attuale combinazione, basta fare click su [Close All] per cancellare la combinazione.

Immagini originali:



Original images

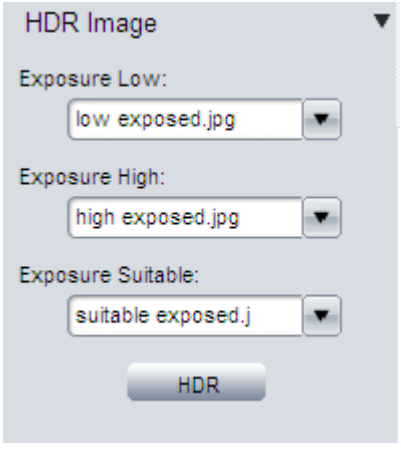
Immagine combinata:



Combined image with optimization

Combined image without optimization

Imaggine HDR



High Dynamic Range (HDR) è usato per ottenere un range dinamico più ampio nell'immagine.

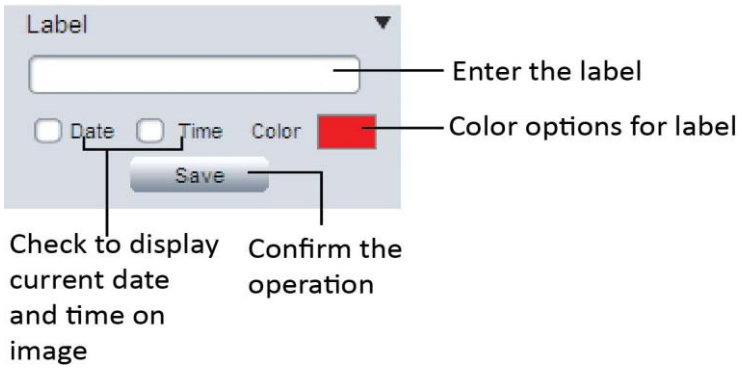
- Scattare foto della stessa scena con tempi di esposizione differenti e caricarli nel software.
- Nel menu a discesa, selezionare le immagini corrispondenti per

[Exposure Low], [Exposure High] e [Exposure Suitable].

- Premere [HDR] per combinare le immagini a diverse esposizioni in una unica. immagine sarà nominato come "hdr_image".

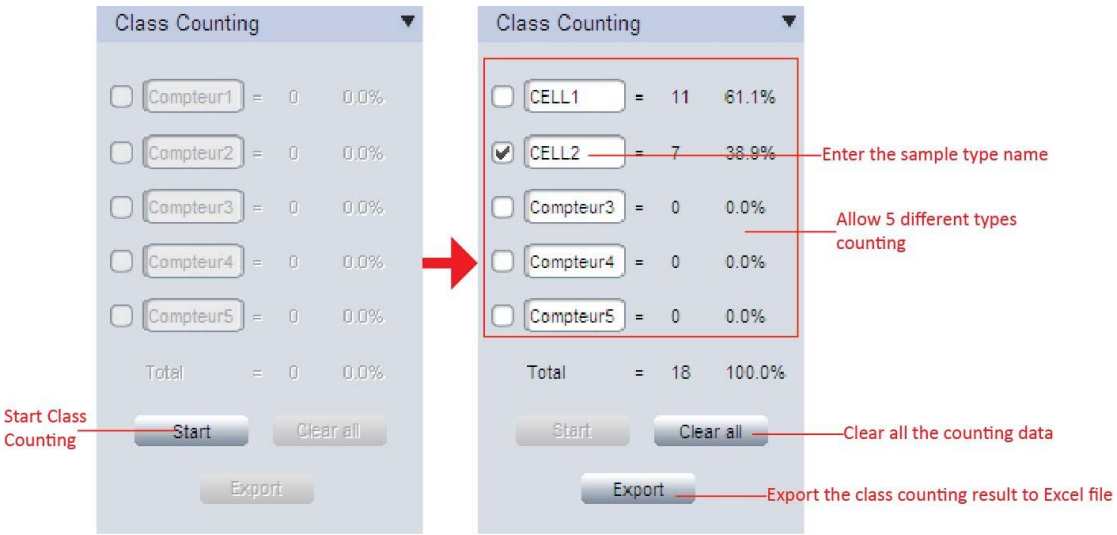
Se le immagini prese a diverse esposizioni non vengono caricate nel software, il collegamento veloce sul lato destro della finestra del software consente di navigare qualsiasi immagine semplicemente.

Etichette

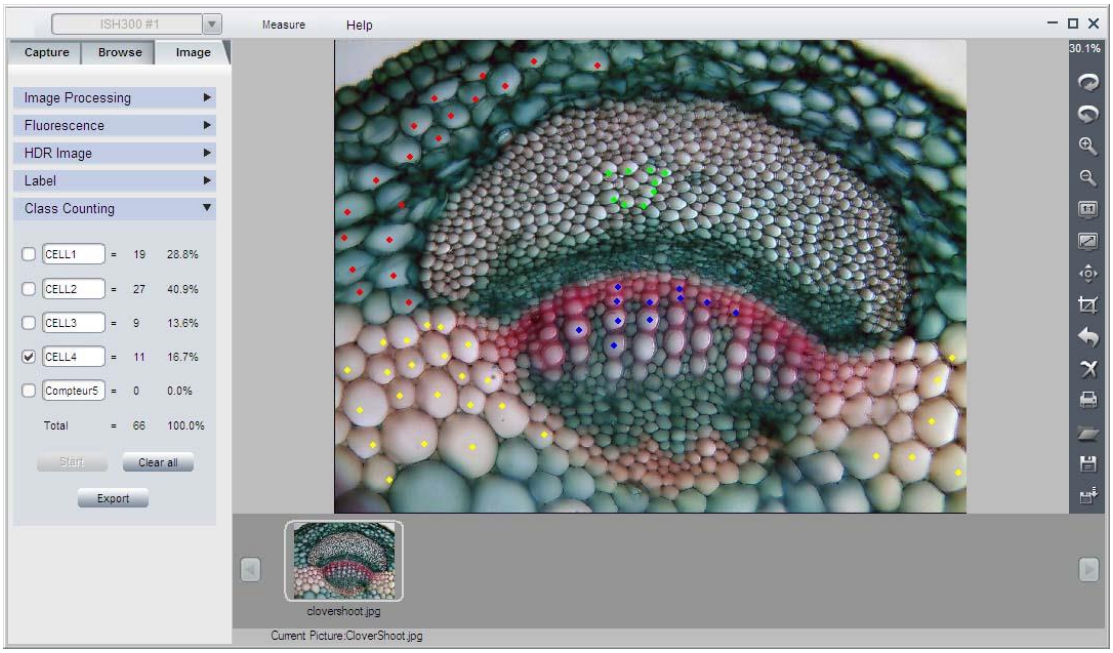


Aggiunge un testo e l'ora e la data sull'immagine. Fare click su [Save] per salvare le etichette.

Conteggio



La funzione di conteggio consente di fare 5 tipi diversi di conteggi manualmente. Ogni tipo verrà contrassegnato con diversi punti di colore.

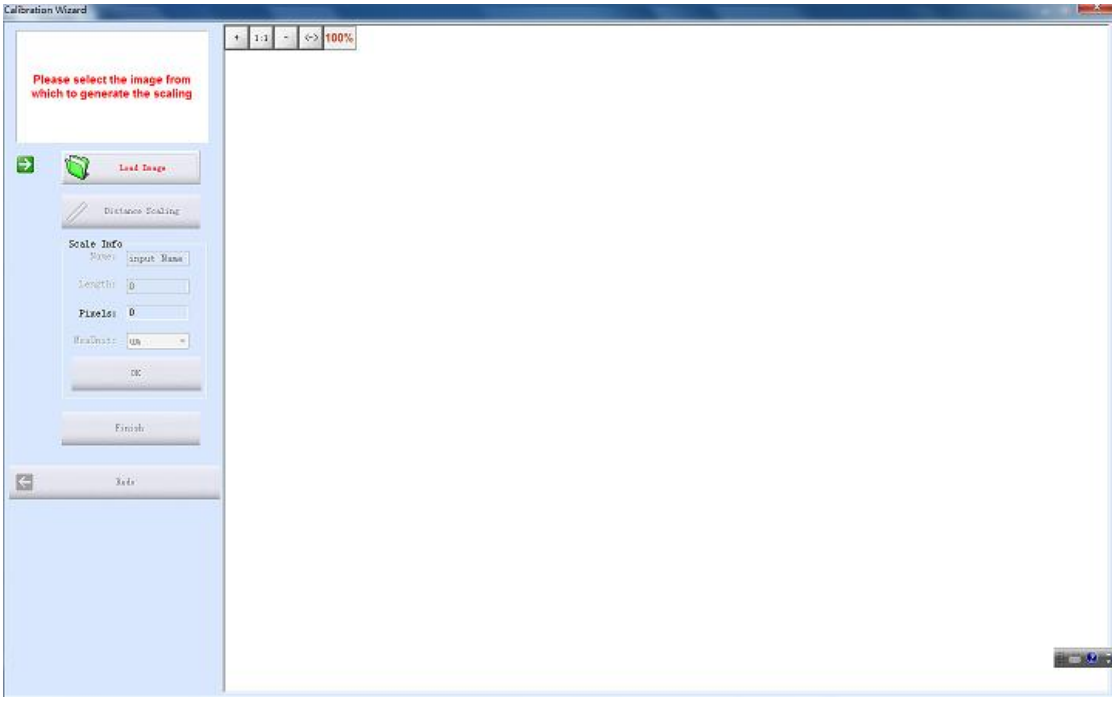


Appendice 1: Come creare un file di calibrazione

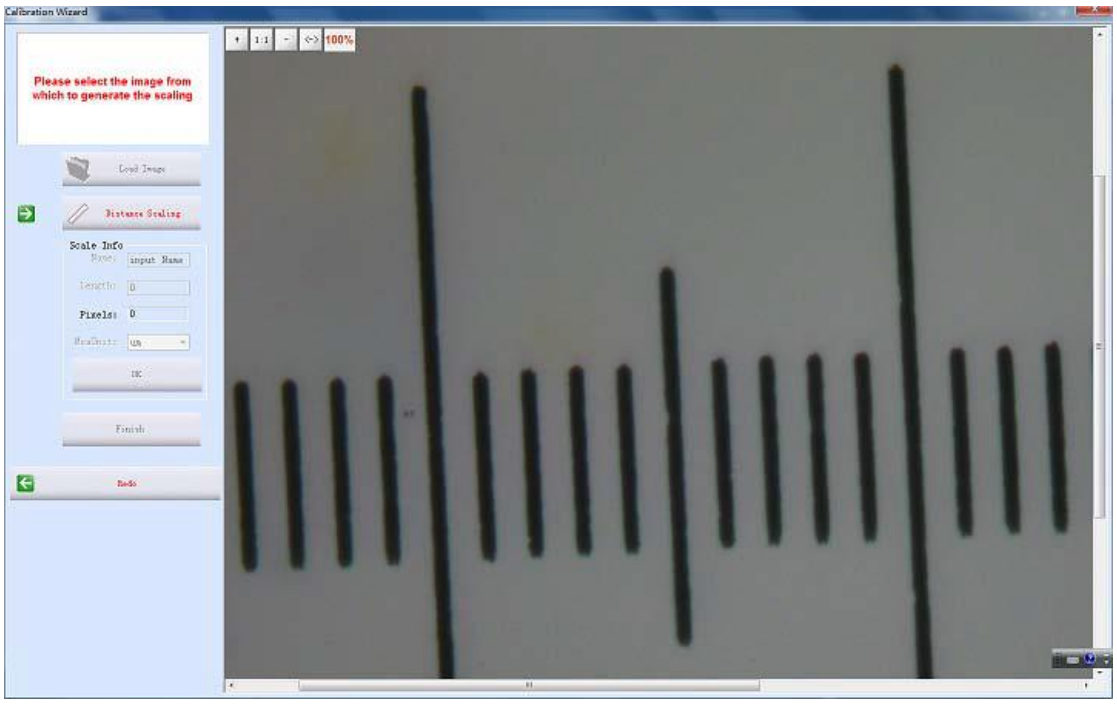
1. Catturare le immagini del vetrino di calibrazione con tutti gli obiettivi con cui si lavorerà (se viene utilizzato pure una lente di riduzione, è necessario catturare l'immagine del vetrino di calibrazione con tale lente di riduzione inserita).

Se solo un obiettivo e una risoluzione sono utilizzati nell'applicazione, una solo foto del vetrino di calibrazione è sufficiente. L'immagine del vetrino di calibrazione deve essere catturata esattamente con lo stesso obiettivo e con i settaggi del microscopio che poi si useranno per osservare il vetrino campione.

2. Fare click su per cominicare a creare il file di calibrazione.

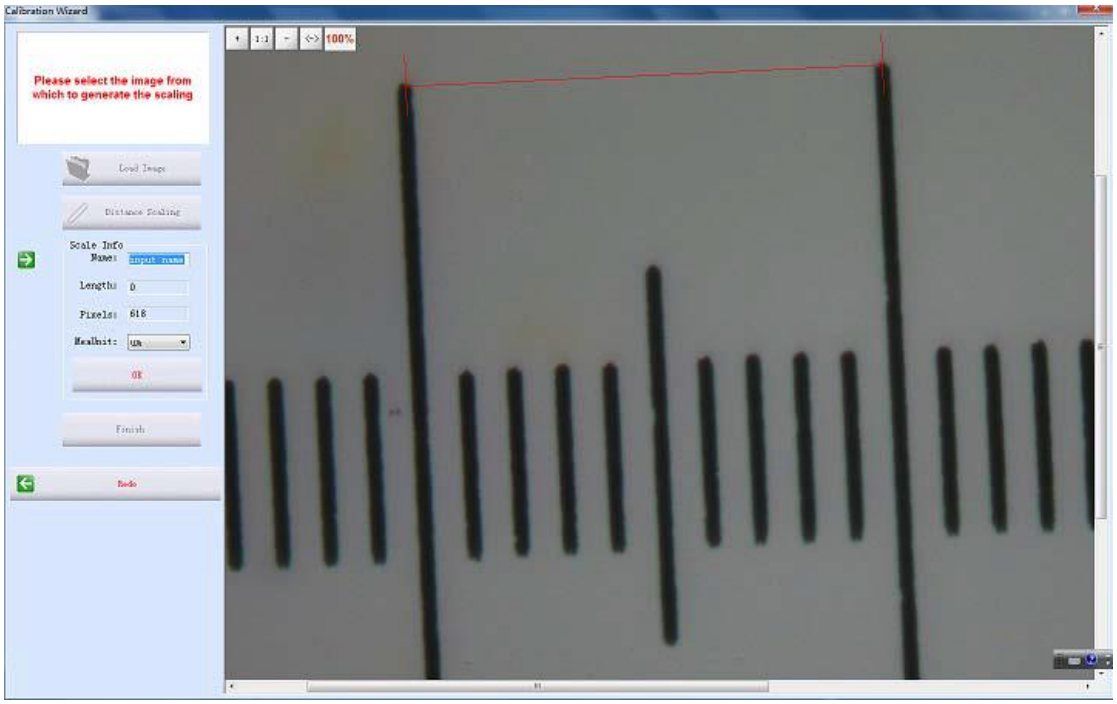


6. Fare click su [Load Image] per caricare la foto del vetrino di calibrazione presa al passo1.



7. Fare click su [Distance scaling] e muovere il cursore sull'immagine del vetrino, disegnare una linea per prendere la lunghezza di riferimento.

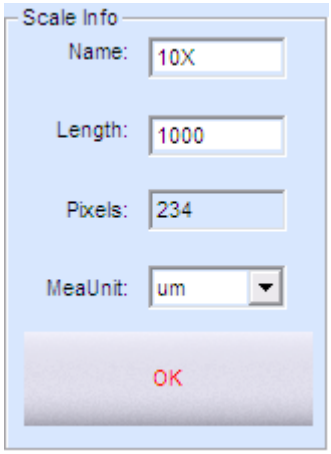
Utilizzare una distanza più lunga come lunghezza di riferimento darà risultati di misura più accurati. Ad esempio, con 10 unità di scala come lunghezza di riferimento si avranno risultati più precisi rispetto all'utilizzo di una sola unità di scala.



5. Inserire il nome del file di calibrazione e la lunghezza della linea che si è disegnato.

Se avete bisogno di più di un file di calibrazione, si consiglia di utilizzare come nome del file il riferimento “obiettivo + lente di riduzione (se utilizzata) + risoluzione”. Questo può aiutare a non scegliere un file di calibrazione errato.

Quando si digita la lunghezza, si prega di prestare attenzione alla unità della scala di calibrazione del vetrino e all'unità di misura utilizzata. Ad esempio, l'unità di scala di calibrazione è 0.1 mm; l'unità di misura selezionata è µm (micron) e la lunghezza di riferimento che si è disegnato è di 10 unità di scala; a questo punto la lunghezza deve essere di 10 x 0,1mm x 1000 = 1000 µm.

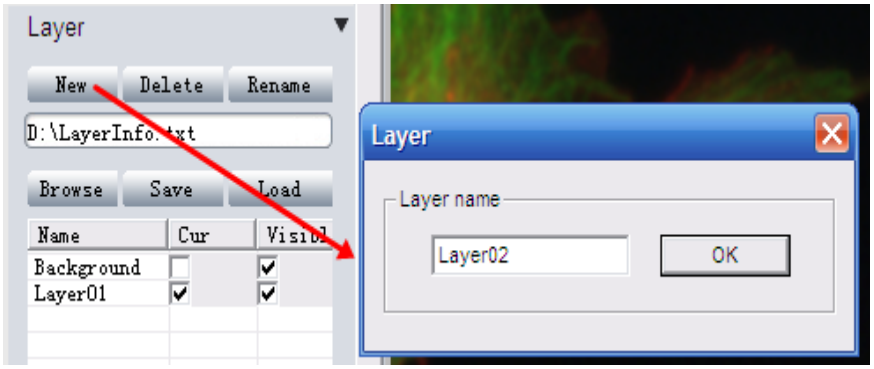


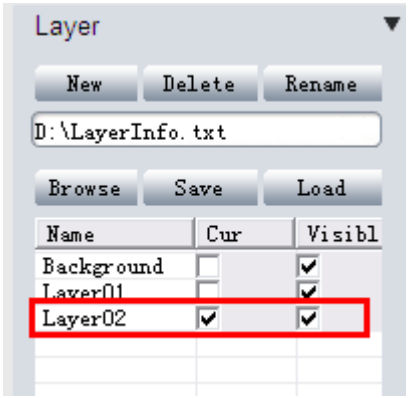
9. Fare click su [OK] per confermare la calibrazione. Il nuovo file di calibrazione il cui nome è “10X”, per esempio, è creato nella Calibrate Table [Tabella di calibrazione].

Appendice 2: Usare i Livelli per misure in blocco

Quando è necessario fare delle misure in blocco sulle immagini, alcune diverse misurazioni sarebbero sovrapposte rendendo la misura molto difficile. La funzione layer consente di creare più livelli per fare misure differenti e renderà semplice l'aggiunta di un gran numero di misure sull'immagine.
Se si sono già fatte delle misure sull'immagine, la funzione **[Measure]-->[Layer]** creera' automaticamente il "background" e "Livello01" per l'immagine corrente.

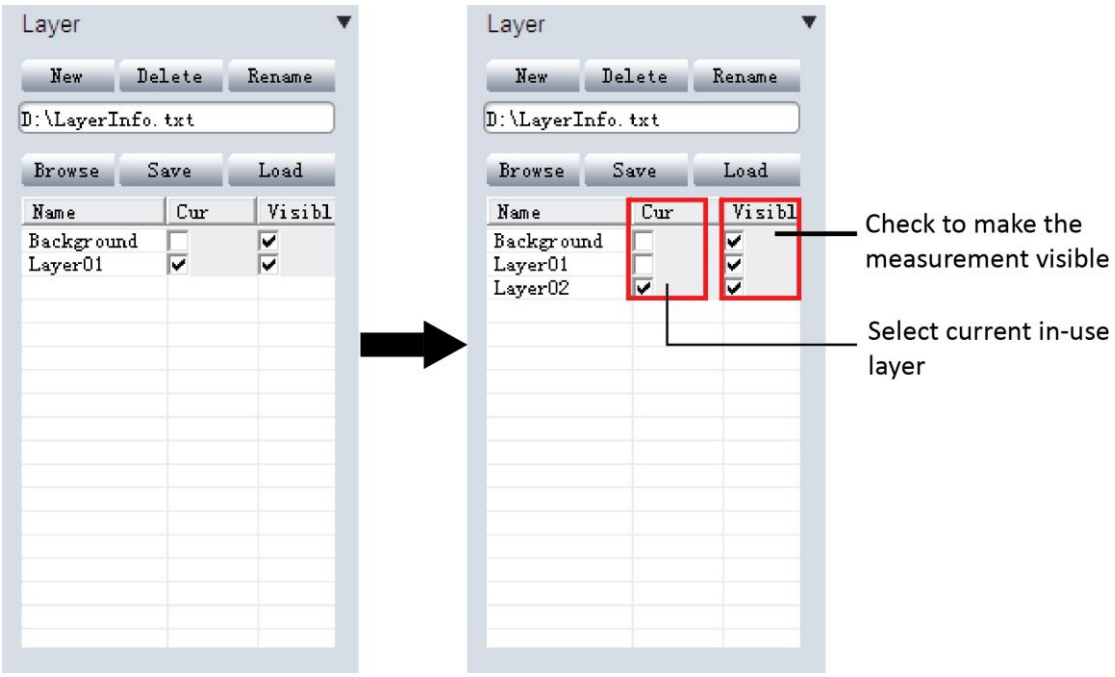
Fare click su [New] per creare un nuovo livello. E' possibile rinominare il nome del livello. Per default vengono usati i nomi "Layer02", "Layer03"...etc..

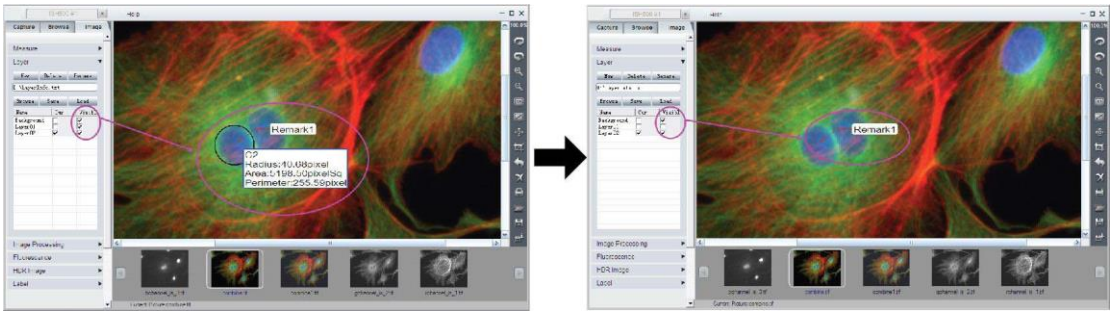




Adesso una quantità di misurazioni possono essere applicate su livelli differenti. Puoi selezionare quale livello osservare.

Se [Cur] è selezionato significa che il livello corrispondente è al momento visualizzato. Selezionare un diverso [Cur] per passare tra I diversi livelli. Nella colonna [Visible], la casella di controllo selezionata significa che tutte le misure nei livelli corrispondenti vengono visualizzati anche nel livello corrente. Deselezionare la casella di controllo, e la misura corrispondente sarà invisibile nel livello corrente



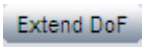


- Fare clic su [Browse] per scegliere la cartella di salvataggio del file e inserire il nome del file. Quindi fare clic su [Save] per salvare le informazioni del livello corrente nel file di testo. Le informazioni del livello sono salvate come "LayerInfo.txt" di default
- Fare clic su [Browse] per trovare il file di informazioni di uno strato. Fare clic su [Load] per caricare le informazioni del livello nell'immagine corrente.

Appendice 3: funzioni avanzate

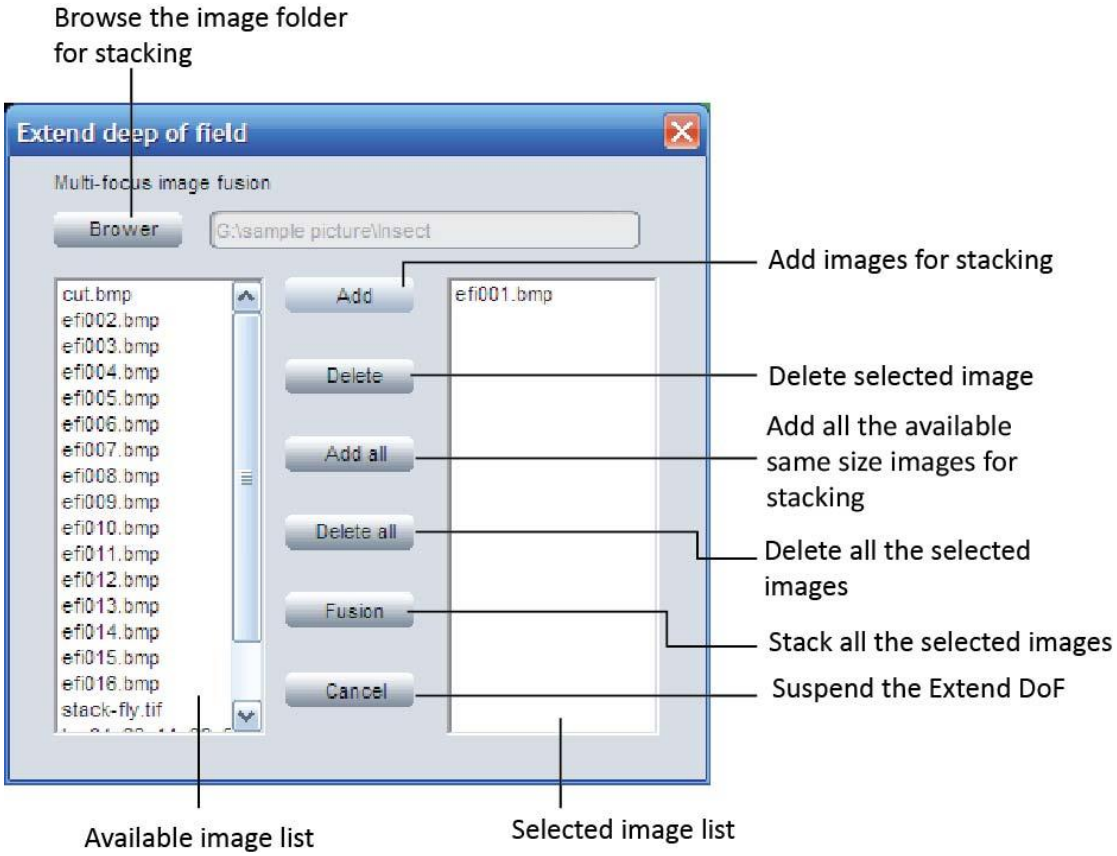
Extend depth of focus

Estendere la profondità di fuoco combina più immagini per crearne una a fuocossa a fuoco. E 'utilizzato per estendere la profondità di campo apparente di un’immagine.

Premere Extend DoF (Estendere DOF) 

per visualizzare la finestra di dialogo che si vede sotto.

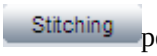
Selezionare le immagini corrispondenti e applicare la funzione.



- Sfogliare la cartella dove si trovano le immagini che si vuole unire.
- Tutte le immagini contenute nella cartella verranno elencati sul lato sinistro. Clicca su un'immagine, l'immagine verrà evidenziata in blu.
- Fare clic su [Add] per aggiungere l'immagine evidenziata sul lato destro (saranno le immagini di partenza da utilizzare per l’unione).
- Il tasto Add all (Aggiungi tutti) permette di aggiungere tutte le immagini delle stesse dimensioni sul lato di sinistra come immagini di partenza sul lato destro con un solo click.
- Fare clic su [Fusion] per impilare tutte le immagini sorgente selezionate e ottenere un'immagine con una profondità di campo estesa.

 Quando viene selezionata un’immagine sbagliata come sorgente per l’unione, basta fare click su di essa e quindi su [Delete] per rimuoverla. [Delete all] rimuoverà tutte le immagini selezionate

Image stitching

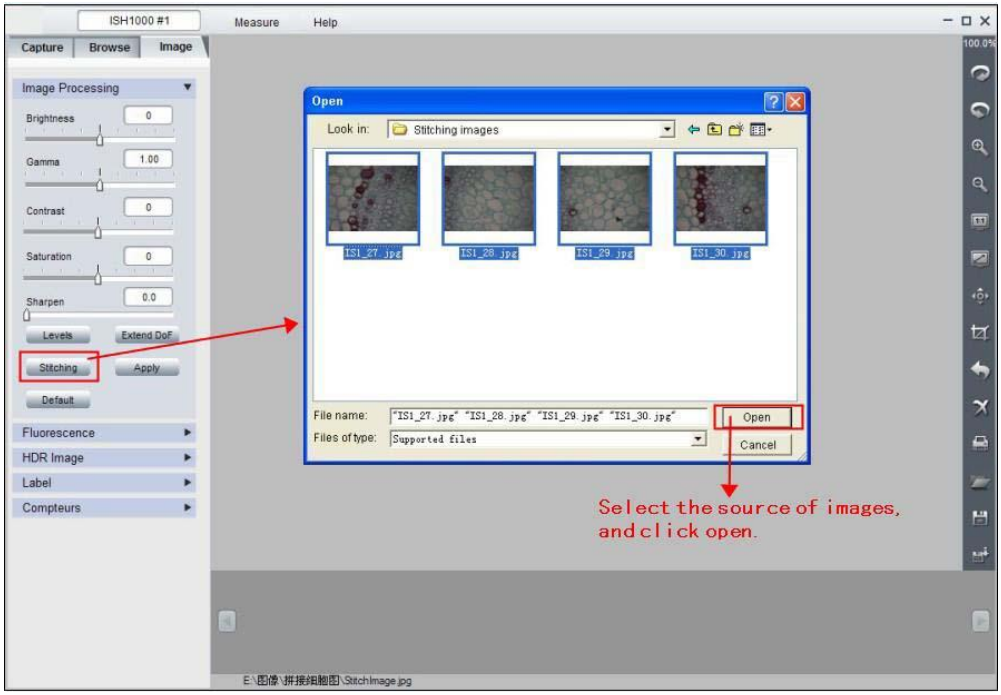
Clicca su 

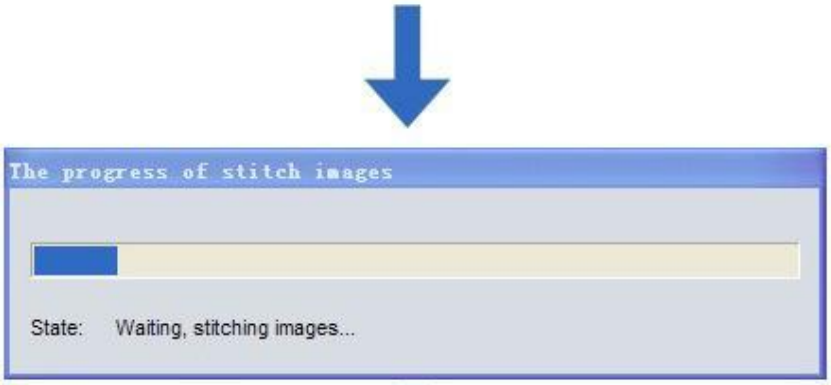
per visualizzzare la configurazione per accostare le immagini. Tale funzione accosta più immagini con campi di vista sovrapponibili per creare un'immagine panoramica più larga o una ad alta risoluzione.

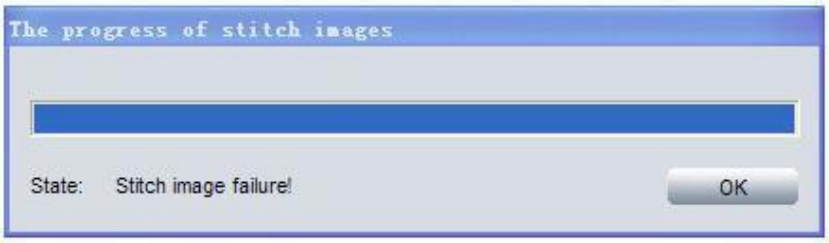
1) Fare clic su [Open] per visualizzare le immagini di partenza per l’accostamento. Selezionare tutte le immagini di partenza e aprirle.

2) Fare clic su [Stitching] per iniziare ad accostare tutte le immagini di partenza.

3) Fare clic su [Save] per salvare l'immagine unione nella stessa directory delle immagini di partenza con la data e l’ora.







Se la sorgente dell'immagine non rispetta I requisiti, verrà visualizzato un messaggio di errore nell'operazione di accostamento.

Endereço do fabricante

Europa

VWR International BVBA

Researchpark Haasrode 2020

Geldenaaksebaan 464

B-3001 Leuven

+ 32 16 385011

http://www.vwr.com

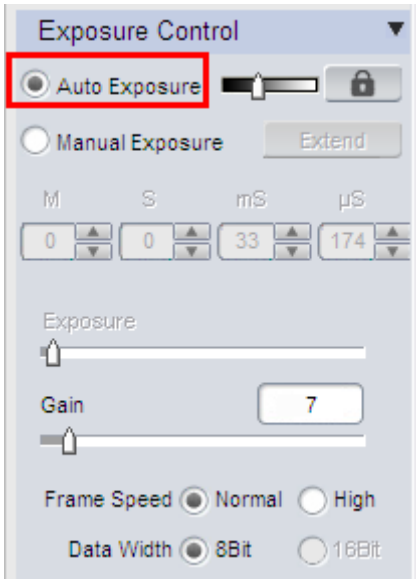
Conteúdo da embalagem

Description	ECN#	Qte
CD-ROM com drivers e software		1

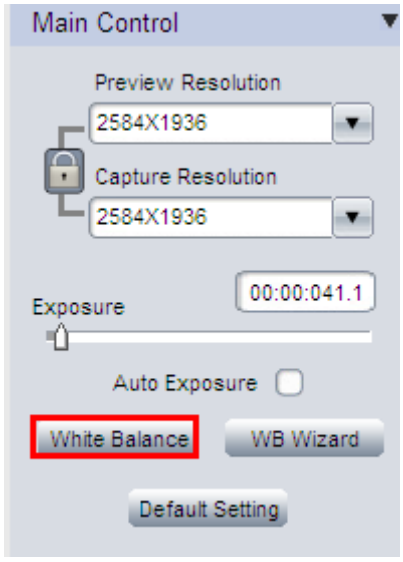
Sistema Recomendado

- Compatível com IBM PC: Windows7 / 8 / 10 (32&64 bit)
- 512 MB de RAM; disco rígido de pelo menos 250GB.
- Interface USB 2.0.
- CD-ROM (para instalar drivers e softwares)..

IS VisiCam software Parâmetro de configuração.



1. Comando **"Auto Exposure"**. Observe a visualização e ajuste o microscópio (ou a lente) para focalizar a imagem. Normalmente a função "Auto Exposure" pode obter a visualização de brilho adequada. Se a visualização ainda estiver escura, ajuste-o manualmente para o meio do controle deslizante.



Quando obtiver visualização no foco, defina o **ganho** de volta para o valor inicial, mude para o modo de **exposição manual** e estenda o tempo de exposição manualmente até obter imagens de brilho adequado.

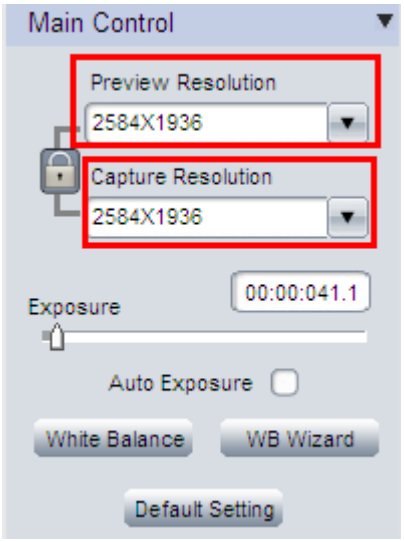
4. Cique em "**White Balance" (balanço de branco)** para

corrigir a imagem colorida.

Para obter um melhor resultado de balanço de branco, mova a amostra para a área em branco no ícone "**White Balance",** e em seguida recoloque a amostra. Também pode clicar em "**WB Wizard"** e seguir as etapas para concluir o balanço de branco.

5. Altere uma resolução para visualizar e capturar imagens de resolução diferentes.

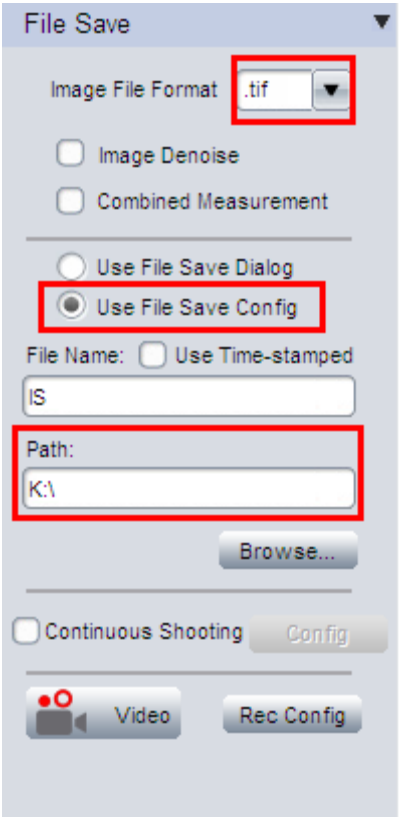
Clique na etiqueta Bloquear  Para bloquear / desbloquear uma visualização e capturar a resolução. Desbloquear permite definir diferentes pré-visualização e captura de resolução (Normalmente, use para visualização em baixa resolução, alta resolução para captura).

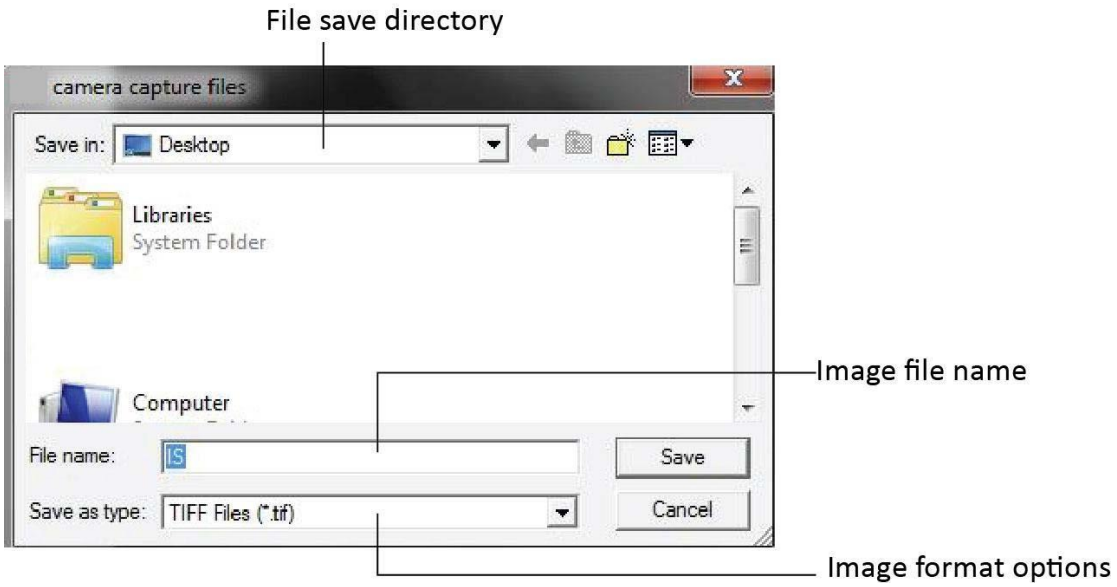


6. Vá para **"File Save" (salvar arquivo)** e defina o formato de gravação de imagem, diretório e nome de arquivo.

a. Selecione **"Use File Save Config" (ultilizar configuração do arquivo salvo)** Para pré-definir o formato de imagem de captura, salvar diretório e nome de arquivo.

b. Selecione **"Use File Save Dialog" (Usar caixa de diálogo para savar um arquivo)** Para usar pop-up diálogo para definir captura de arquivo de imagem nome e salvar diretório e formato.



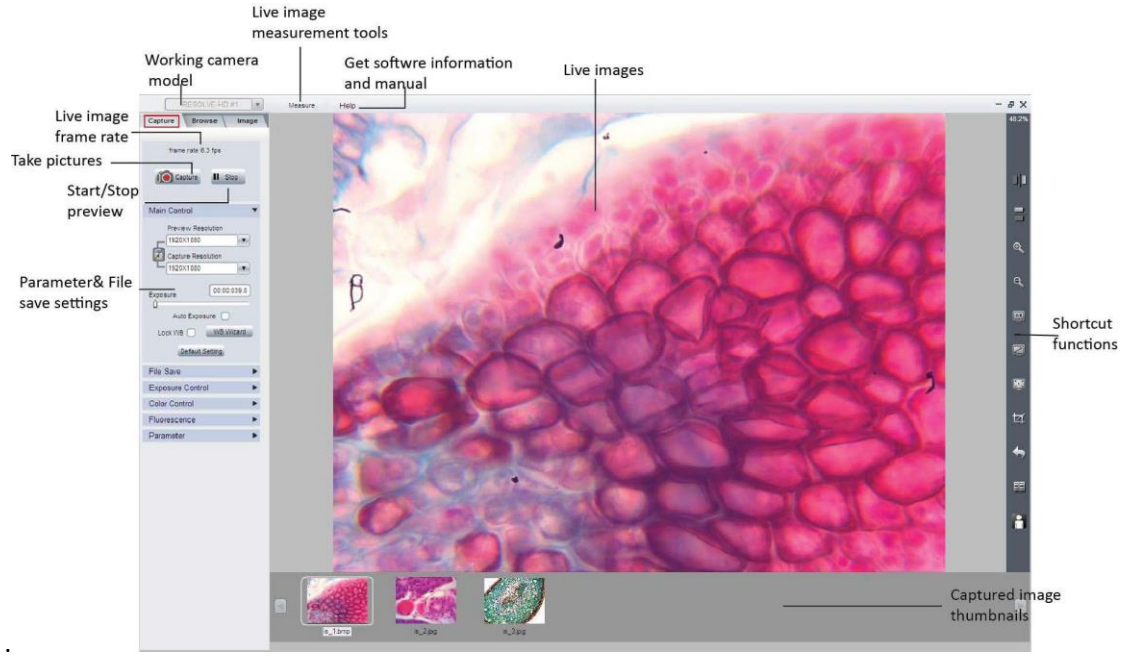


Toda vez que clicar no botão Capturar 

, a caixa de diálogo Salvar arquivo aparecerá toda vez para pedir para definir o nome do arquivo, salvar o formato de diretório e imagem.

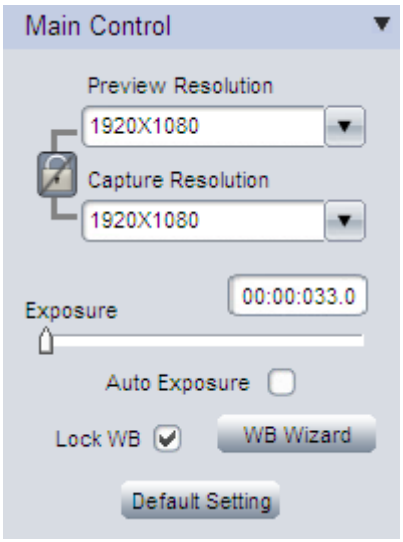
Capítulo 2: Aquisição de Imagem

Ajuste as configurações dos parâmetros da câmera para obter uma imagem real correta; imagem ao vivo e salvar fotos e vídeos.



.

Controle Básico.

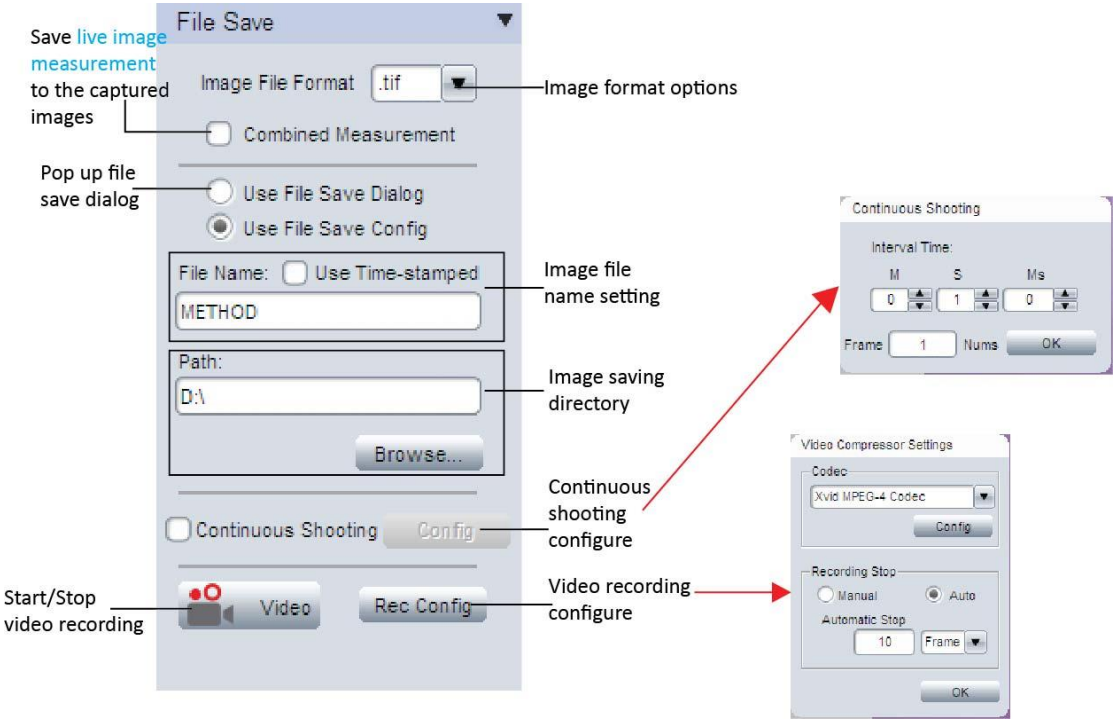


Preview Resolution 1920X1080	Live image resolution	Select resolution for live image
Capture Resolution 1920X1080	Captured image resolution	Select resolution for capturing
Exposure 00:00:033.0 Auto Exposure	Exposure Time	Change Exposure time to adjust image brightness. Auto Exposure mode will adjust proper brightness image automatically.
Lock WB	Lock White Balance	Unchecked: Auto White Balance mode. Apply white balance calculation for every frame image. Checked: Lock the White Balance calculation result.
WB Wizard	White Balance Wizard	Wizard for getting better White Balance result.
Default Setting	Default settings	Restore all the parameters to default value

Depois de definir a imagem ao vivo de brilho, recomenda-se aplicar o Equilíbrio de Branco para corrigir a cor da imagem ao vivo. Para obter melhores efeitos de balanço de brancos, siga os seguintes passos:

5. Mova a amostra para área em branco;
6. Desmarque [Lock WB];
7. Quando visualizar a imagem na cor correta, marque a caixa de verificação [Lock WB];
8. Mova a amostra para trás.

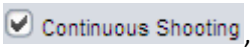
Tirando fotos e vídeos



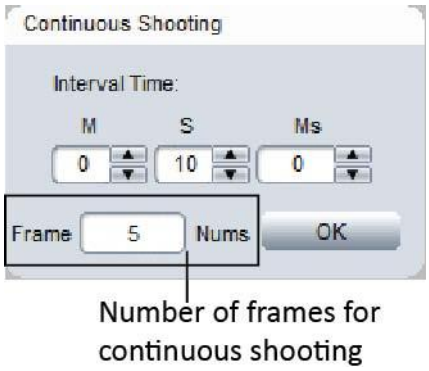
- Em [File format] menu suspenso , 4 formatos de arquivo estão disponíveis: JPEG, BMP, TIFF and RAW.

O arquivo de imagem bruta contém dados minimamente processados da câmera. Ele precisa ser lido em algum software especial, como por exemplo, Photoshop, Imagj, etc. Se é um arquivo de câmera colorida, informações de cor só pode ser visto após a decodificação da matriz Bayer.

Disparo Contínuo

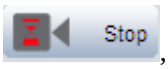
- Clique [Continuous Shooting] na caixa de seleção 

, o software guardará automaticamente um conjunto de imagens após [Capture] ser executada.
- Clique [Config] Para definir a captura contínua de números de imagem e o intervalo de tempo.



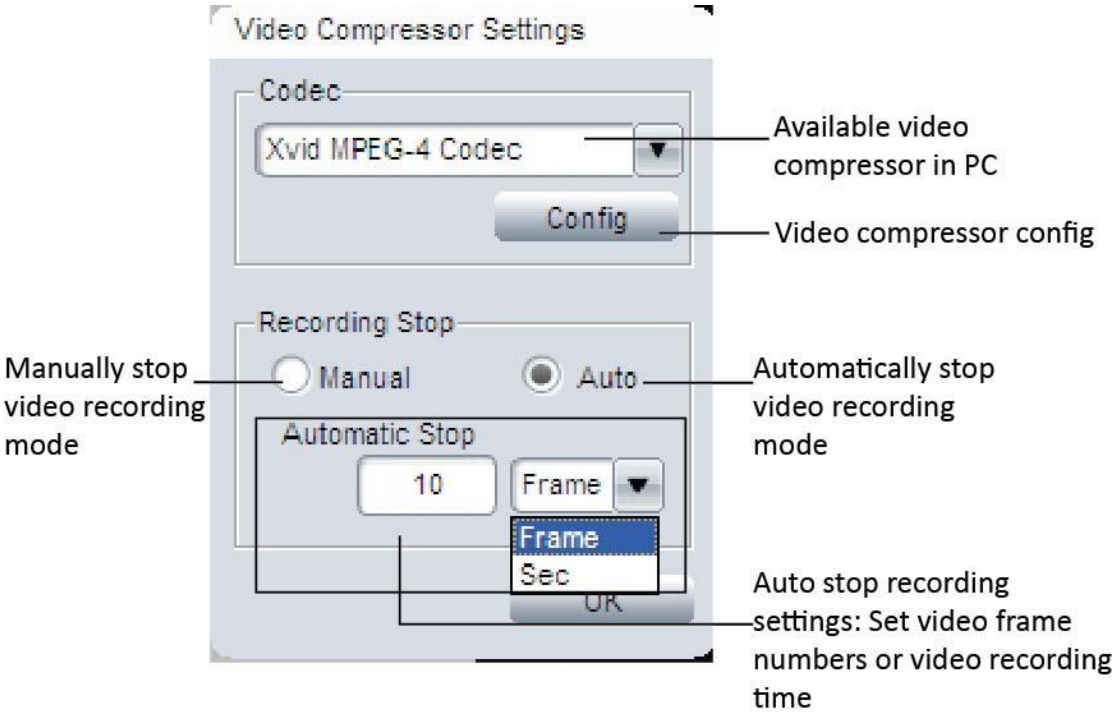
Gravando um video

Clique em [Video] 

/ 

, start/ stop para gravar.

Clique em [Rec Config] para obter a janela de configuração de gravação de vídeo.



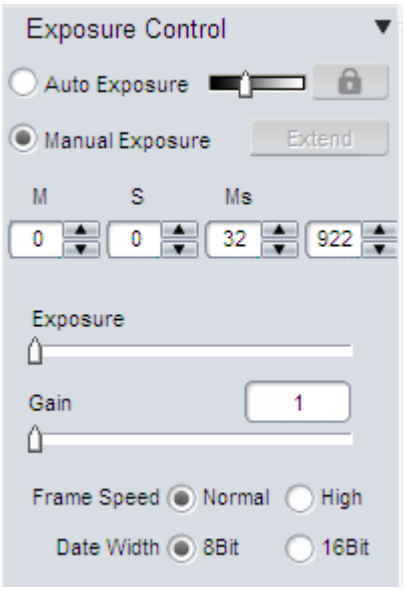
Ele fornece [Manual] e [Auto], modos para terminar a gravação.

- Modos de [Manual], [Auto] é pressionado para iniciar e parar a gravação.
- Modos de [Auto], pré-define o número de fotogramas ou o tempo o botão [Video] quando é pressionado, IS VISICAM SOFTWARE irá parar a gravação automaticamente Depois de salvar o número pré-definido de quadros ou o tempo pré-definido está acima.
- [Rec Config]>>[Codec] Também existem todos os compressores de vídeo disponíveis sem PC.

 O vídeo tirado sem qualquer compressão será de tamanho muito grande. IS VISICAM SOFTWARE pesquisa automaticamente o Compressores de vídeo instalados no PC.

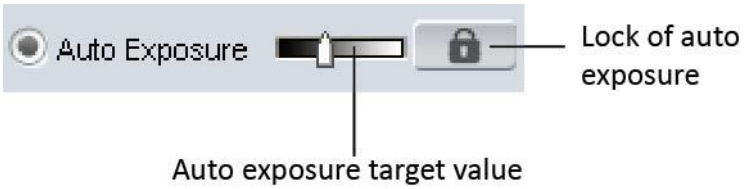
Exposure Control (Controle de exposição)

Altere o Tempo de exposição, ganho para ajustar o brilho da imagem. Selecione a velocidade da moldura para obter uma taxa de quadros de imagens ao vivo diferente. Definir largura de dados de 8 ou 16 bits para imagens capturadas.

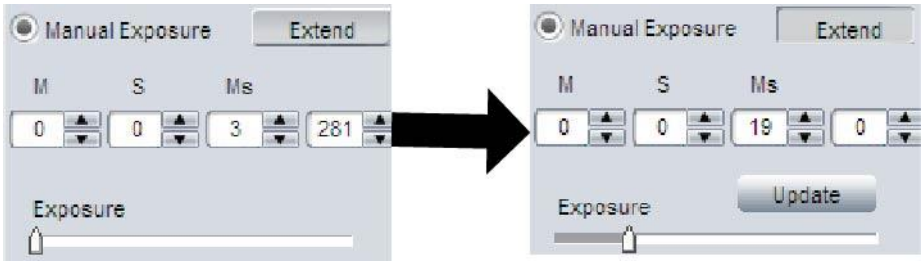


Auto Exposure (Exposição Automática)

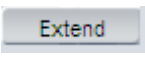
- Verifique [Auto Exposure] em caixa de seleção, o software começa a ajustar o tempo de exposição automaticamente para obter o brilho adequado da imagem ao vivo.
- Auto exposure target value: Defina o tempo de exposição de referência para o ajuste da exposição automática.
- Lock: Irá parar o cálculo da exposição automática.



Manual Exposure (Exposição Manual)



Manual Exposure. (Ajuste o tempo de exposição manualmente)

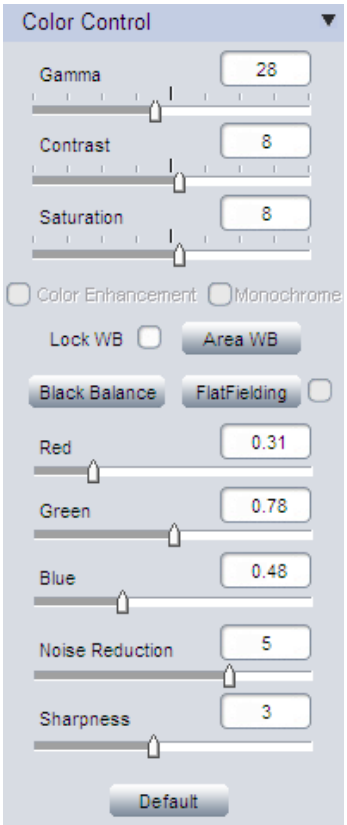
O modo [Extend]  é usado para obter maior tempo de exposição. Esta função está Disponível apenas para câmeras CCD. Para outras câmeras, especialmente a câmera CMOS, o tempo de exposição máximo é menor que 1 segundo, então o botão [Extend] ficará marcado.

O modo [Update] Update aparece depois e [Extend] é selecionado. Clique nela para finalizar o tempo de exposição anterior e reinicie o novo imediatamente. Para aplicações de longa exposição, recomendamos que [Update] seja usado para iniciar uma nova configuração. Isso ajudará a obter a nova imagem exposta anteriormente. Se o tempo de exposição for inferior a 2-3 segundos, não é necessário usá-lo.

Ganho, velocidade da moldura e largura dos dados.

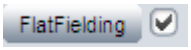
Gain		Increase the power of the image data. Higher gain gives brighter images, but also makes the noise signal more obvious.
Frame Speed	High Speed	Corresponding to high pixel clock. Gives faster frame rate.
	Normal Speed	Offer lower frame rate than High Speed, but gives longer maximum exposure time.
Data Width	8-bit	8-bit images use 2^8 = 256 gray levels to represent image details.
	16-bit	16-bit images use 2^16 gray levels to represent image details. ONLY available for CCD & Discovery series cameras in .Tiff and .Raw formats.

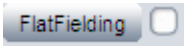
Color Control (Controle de cores)



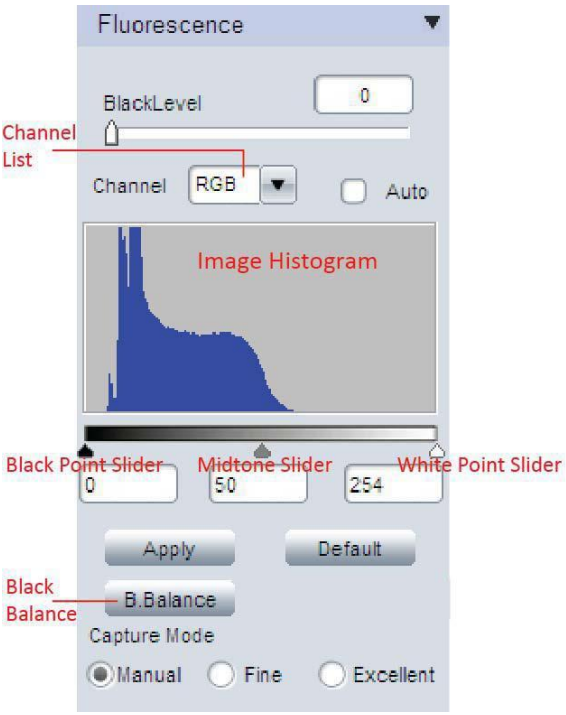
Flat Fielding Function (Função de campo plano)

A função de campo plano é utilizada para corrigir o brilho de fundo irregular.

- Clique em [FlatFielding] 

para iniciar o cálculo do Parâmetro de campo plano e aplicá-lo às imagens ao vivo.
- Quando a caixa de seleção 

Está desmarcada, o parâmetro de campo plano calculado é Não aplicado para as imagens ao vivo.



Para obter um melhor resultado de campo plano, mova a amostra para uma área em branco primeiro, aplique o campo plano e, em seguida, mova a amostra de volta.

Quando a iluminação é alterada, refaça o [FlatFielding] para corrigir o brilho irregular.

Fluorescence Settings (Configurações de Fluorescência)

Incluídos em nosso software são úteis configurações de parâmetros para fluorescência ou imagens de baixa luminosidade. Ajuda a obter imagens melhores e mais rápidas.

Black Level (Nível de Preto)

A função de nível de preto define o nível de brilho na parte mais escura da imagem. Em imagens com pouca luz, ajuda a ver mais detalhes na área escura.

Em aplicações de pouca luz, geralmente precisa de um tempo de exposição bastante longo para obter imagens adequadas. Se você definir um tempo de exposição longo no início, você pode precisar muito tempo para encontrar o seu

alvo e obter uma imagem adequada (aguarde para terminar uma longa exposição para obter uma nova imagem de quadro, ajustar, esperar ...). Ao procurar o alvo de imagem no início, recomendamos que defina um tempo de exposição mais curto, mas fazer maior Gain e Black nível primeiro. Depois de encontrar o alvo, reduza o nível de ganho e preto e aumente o tempo de exposição. Isto ajudará numa melhor aquisição de imagem.

Levels (Níveis)

A ferramenta de níveis pode mover e esticar os níveis de brilho em um histograma usando três componentes principais: um ponto preto, um ponto branco e um controle deslizante de meio-tom.

Lista de Canais: Permite escolher se deseja editar o canal RGB ou um dos três canais de cor individuais (Vermelho, Verde e Azul).

[Auto] checkbox: Ajuste os níveis de imagem ao vivo automaticamente.

Ajustes de níveis de imagem (Manual adjustments of image levels.)

Mova o Slider de ponto branco para a esquerda, ele é capaz de mostrar alguma informação em área escura. Se mover Black Point Slider para a direita, ele irá mostrar informações área brilhante.

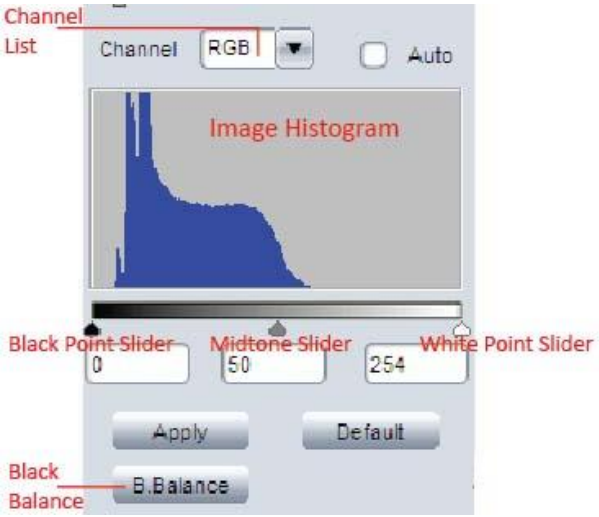
Depois de ajustar os níveis, clique em Apply para confirmar a configuração

e se você precisar voltar para a imagem original, clique Default em restaurar a imagem.

[Black Balance] (Balanço de Preto): Mostra á câmera uma referência de "preto verdadeiro", pois ele é somente necessário em imagens de campo escuro.

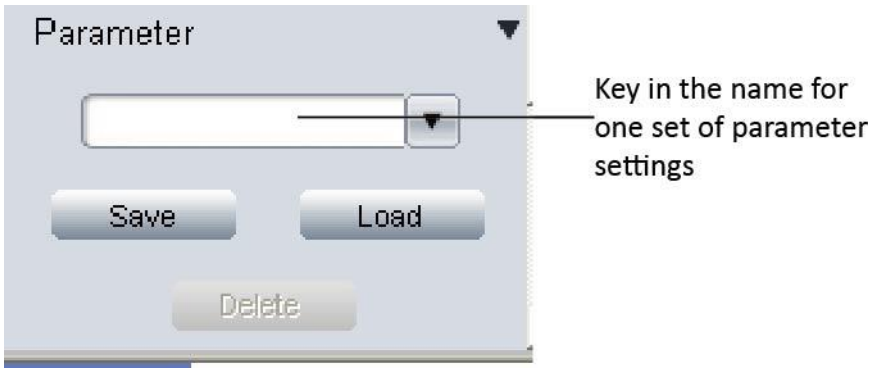
Modo de captura (Capture Mode)

Três modos de captura são especialmente desenvolvidos para imagens de fluorescência.



Manual	Capture the image with current parameter settings
Fine	Automatically reduce the gain and extend the exposure to get the same brightness image. (Lower gain will give lower noise level images)
Excellent	Automatically save 10 images with current settings and then get an average image. (It needs to take a while to capture an image in this mode.)

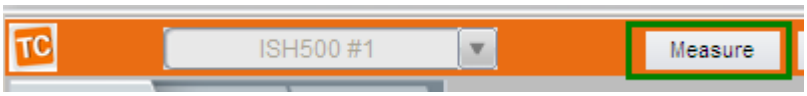
Grupo de Parâmetros (Parameter Group)

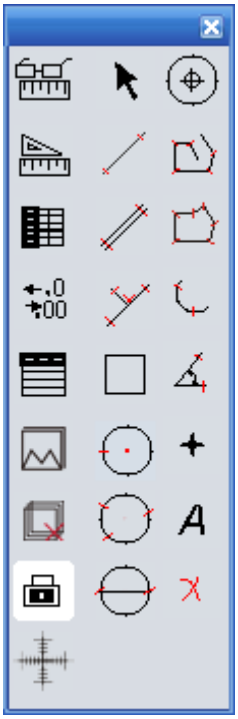


Salve conjuntos de parâmetros para diferentes aplicativos. Os parâmetros salvos incluem tempo de exposição, ganho, velocidade de quadro, largura de dados, gama, contraste, saturação, status do realce de cores, monocromático, ganho RGB e nível de preto. Permite aos usuários salvar 20 parâmetros definidos.

Capítulo 3: Medição da imagem real e fixa.

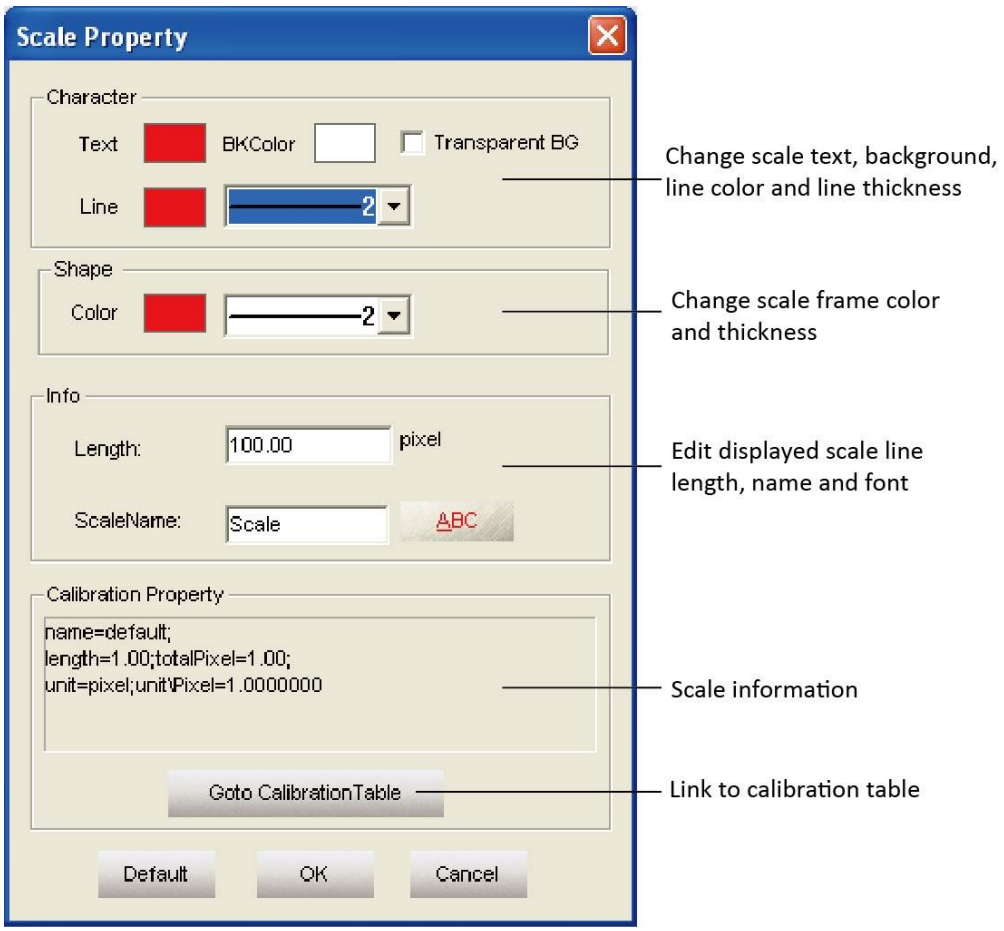
Clique em [Measure] no topo do IS VISICAM SOFTWARE para obter as ferramentas de medição





	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
	Polyline	Measure polyline length.
	Polygon	Measure polygon area and perimeter.
	Arc	Measure a curve angle, radius and length.
	Angle	Measure the angle
	Count	Counter. Manually 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.

Editar linha de escala (Edit Scale Line)

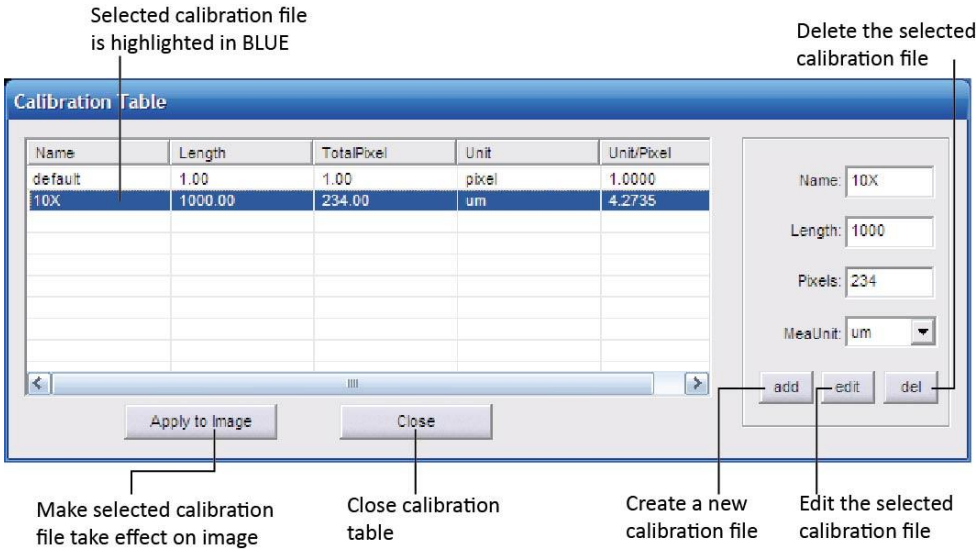


Clique duas vezes na escala para obter suas propriedades e fazer alterações nela.

Criar arquivo de calibração (Create Calibration File)

Para medir o tamanho real das amostras, o arquivo de calibração correspondente precisa ser criado primeiro. Verifique o **"Apêndice 1"** para obter mais detalhes sobre a calibração.

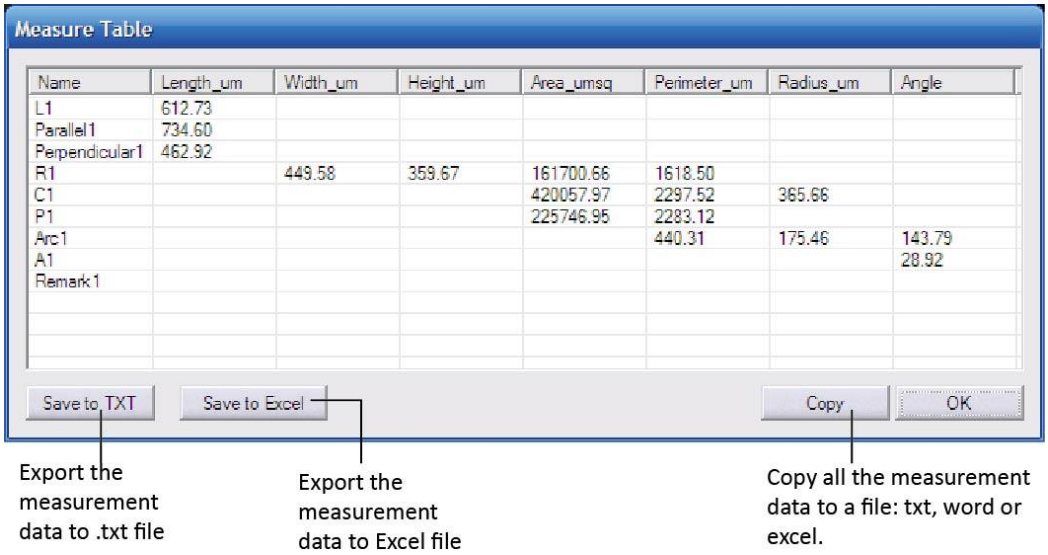
Tabela de Calibração (Calibration Table)



- Clique em  [Calibrate Table] para abrir a tabela de calibração.
- Selecione o arquivo de calibração correto para a medição da imagem atual.

Usando o arquivo de calibração WRONG fará o resultado da medição Impreciso. Verifique se o arquivo de calibração está corretamente correspondendo à imagem atual. Por isso, é recomendado nomear o arquivo de calibração com as configurações de captura ou o nome do objetivo.

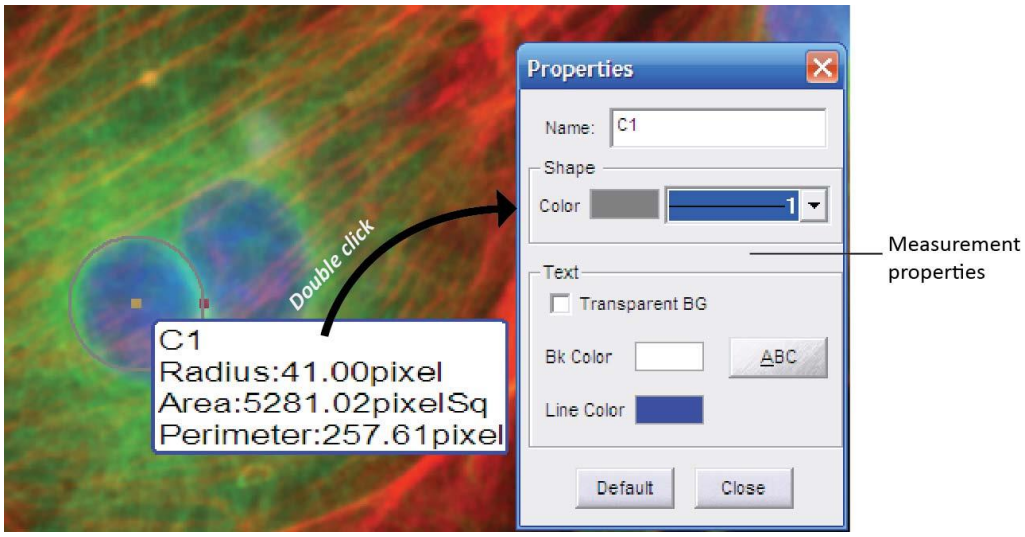
Lista de medição (Measurement List)



Todos os dados de medição estão listados na [Lista de medições]. O software permite exportar os dados de medição para TXT ou arquivo do Excel.

Medição (Measurement)

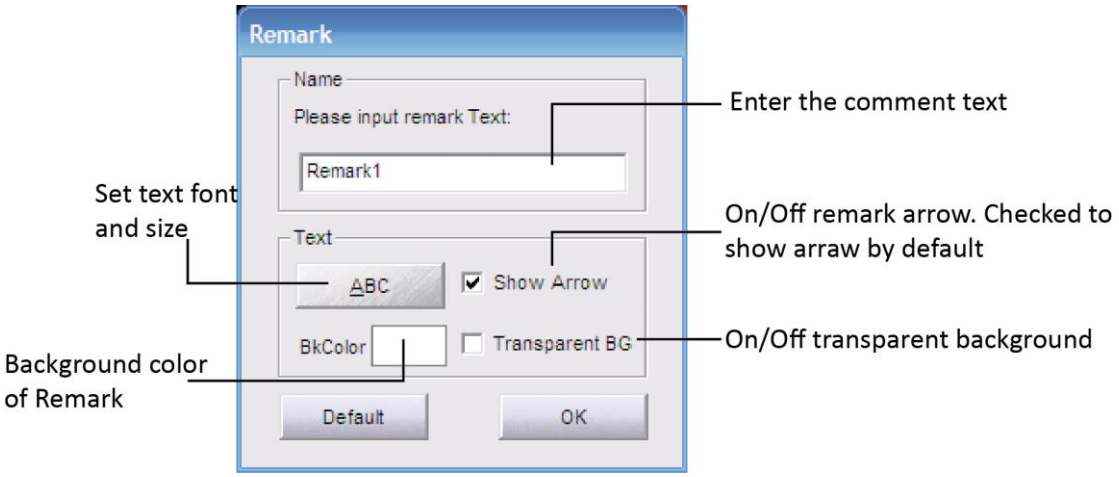
O software “IS VISICAM SOFTWARE” permite que você faça linha, paralela, vertical, retângulo, círculo, polígono, arco e ângulo de medição. A função [Count] permite que você conte os objetos manualmente. E a função [Annotate] oferece a possibilidade de adicionar comentários sobre as imagens.



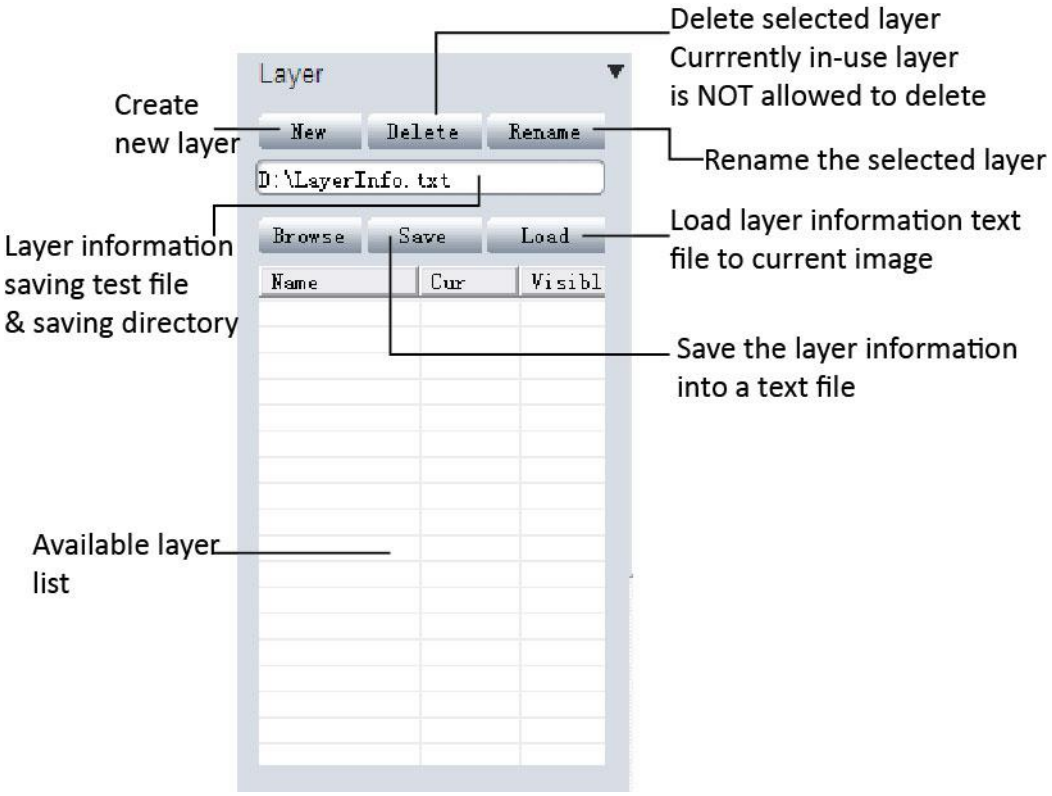
Clique duas vezes nos dados de medição para obter a janela de configuração de medição. Ele permite que você altere o nome dos dados medidos como por exemplo: cor, espessura, cor de fundo e a fonte do caractere.

Anotar (Annotate)

Selecione [Annotate] e clique na área da imagem que você prefere para adicionar uma observação.



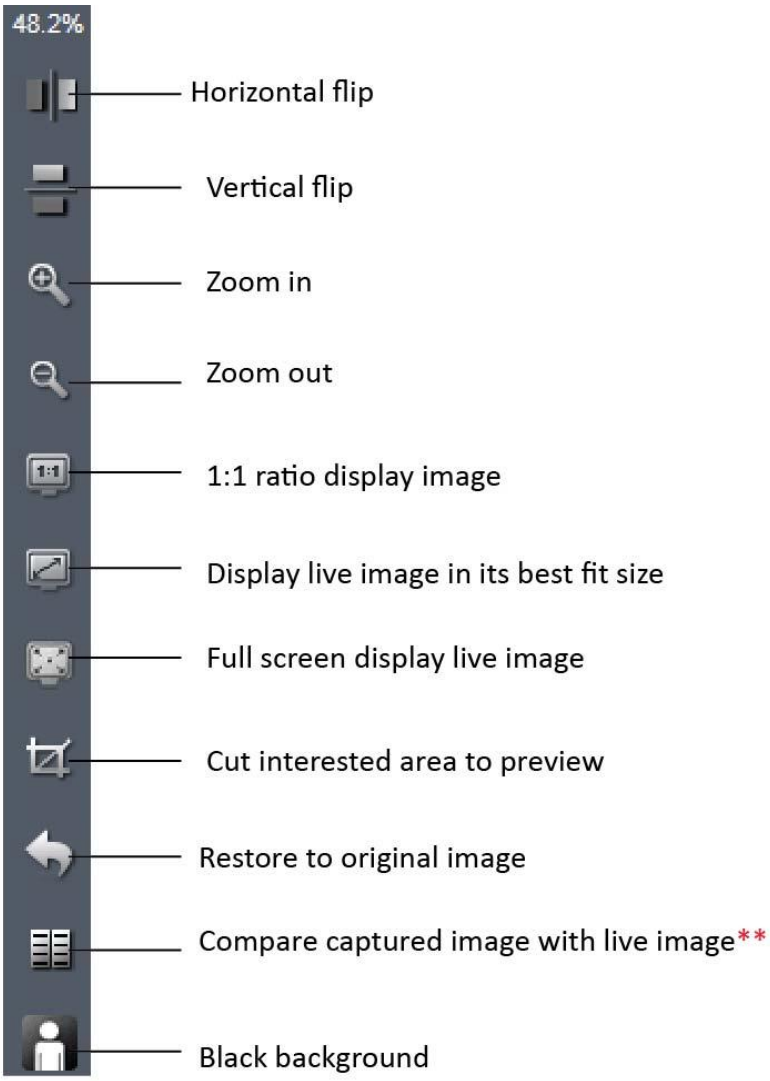
Camada (Layer)



Quando a necessidade de aplicar a medição de massa nas imagens, algumas medições diferentes seriam sobrepostas que tornam a medida muito difícil. A função de camada permite criar várias camadas para fazer diferentes medições, o que tornará simples e fácil adicionar um grande número de medições na análise de imagem processada. Acesse o Apêndice 2 para obter mais detalhes.

Atalho da imagem ao vivo **(Live image shortcut)**

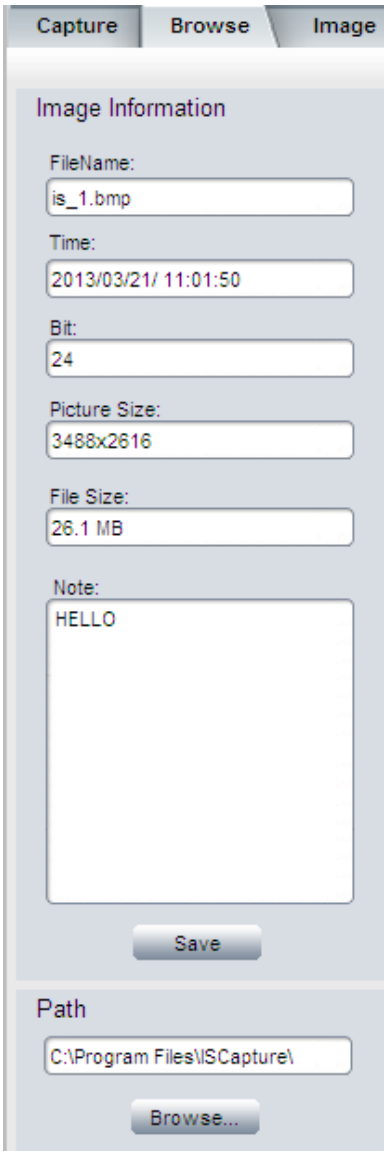
No lado direito da janela de imagem ao vivo, alguns atalhos são fornecidos para processar a imagem ao vivo rapidamente.



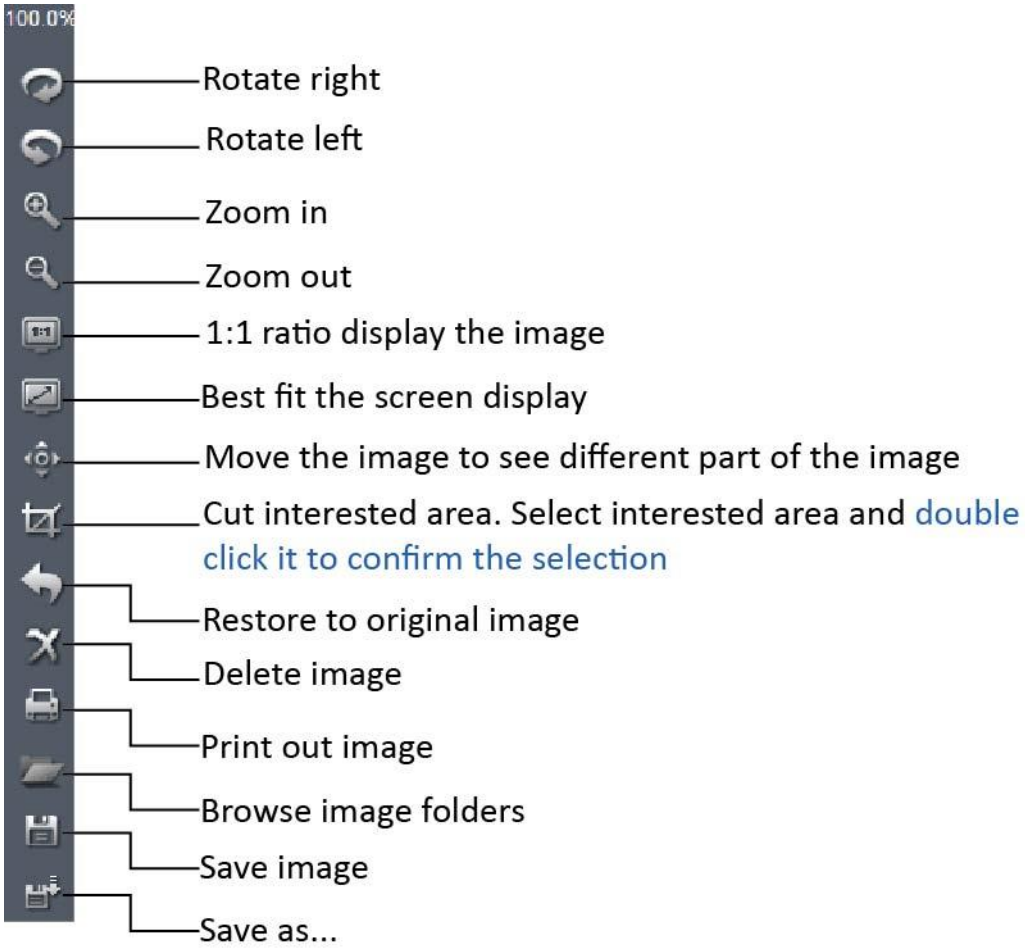
** Compare function: Live image will be displayed on the left side. Click on the taken image thumbnail to select it to compare with live images (Chosen compared image will be enhanced in gray-white frame).

Capítulo 4: Gerenciamento de imagem

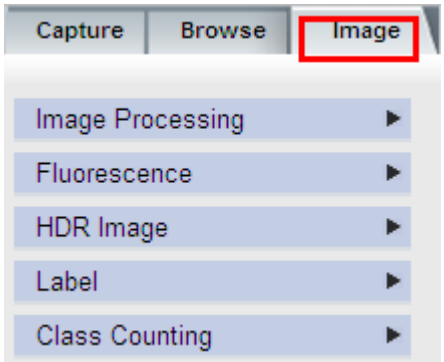
Ver imagens no painel [Browser], apresenta a imagem, nome do ficheiro, tempo de captura, profundidade de cor (bit), resolução da imagem e tamanho da imagem. Também permite que você adicione comentários em qualquer imagem individual. Quando aparecer esta imagem da próxima vez no IS VISICAM SOFTWARE, ele irá mostrar o comentário da imagem.



O software “IS VISICAM SOFTWARE” fornece algumas funções rápidas no lado direito do software no modo Procurar ou Imagem.



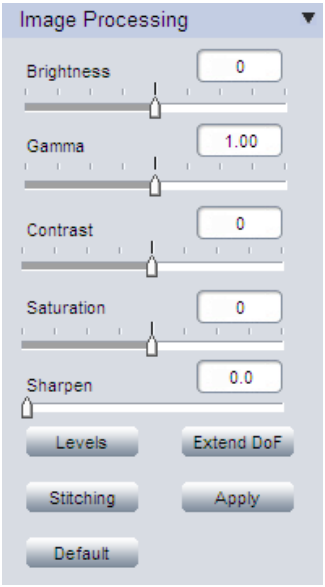
Capítulo 5: Processamento de Imagem



Nesta seção, o software “IS VISICAM SOFTWARE” fornece funções avançadas de processamento de imagem e também permite que você faça a medição nas imagens estáticas.

Processamento de imagem (Image Processing)

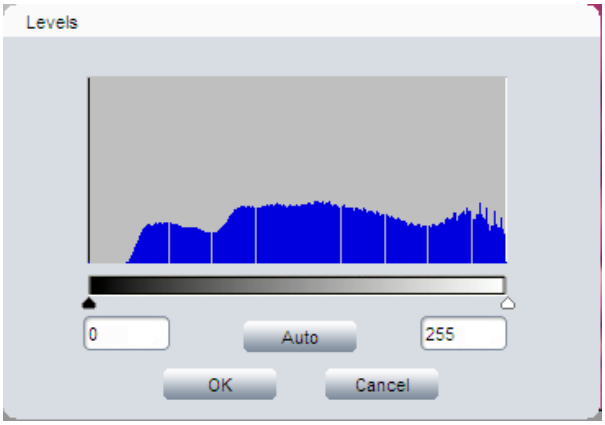
Fornece funções básicas de processamento de imagens capturadas e permite funções avançadas e profundidade de foco prolongada e mistura de imagem.



Brightness	Adjust captured image brightness. Default brightness = 0
Gamma	Adjust captured image gamma. Default gamma = 1.00
Contrast	Adjust contrast. Increase the contrast, the shadows become darker and the highlights brighter. Decrease the contrast, the highlights grow dim and the dark areas lighten up
Saturation	Adjust the color saturation. Fully-saturated colors are very bright, while low saturation are grayish.
Sharpen	Adjust the image sharpness. Sharpness is the contrast on the edges. Sharpening increases the bright and dark lines on edges.
Levels	Adjust image levels. Get more details in [Fluorescence]>>[Levels]
Extend DoF	Extend the Depth of Focus (DoF)
Stitching	Image stitching. Combine multiple images with overlapping fields of view to produce a segmented panorama or high-resolution image.
Default	Restore Brightness, Gamma, Saturation, Sharpen and levels back to the default value
Apply	Confirm to apply all the settings to the image.

Depois de clicar em [Aplicar], todas as configurações serão aplicadas à imagem. NOTA: Depois de escolher esta opção Não pode voltar à imagem original.

Level (Níveis)



Pressione [Levels] Levels Para obter o histograma da imagem. Permite-lhe ajustar os níveis da imagem. O ajuste de nível é o mesmo que o ajuste do nível da imagem ao vivo. Obtenha mais detalhes em **[Capture]-->> [Fluorescence].**

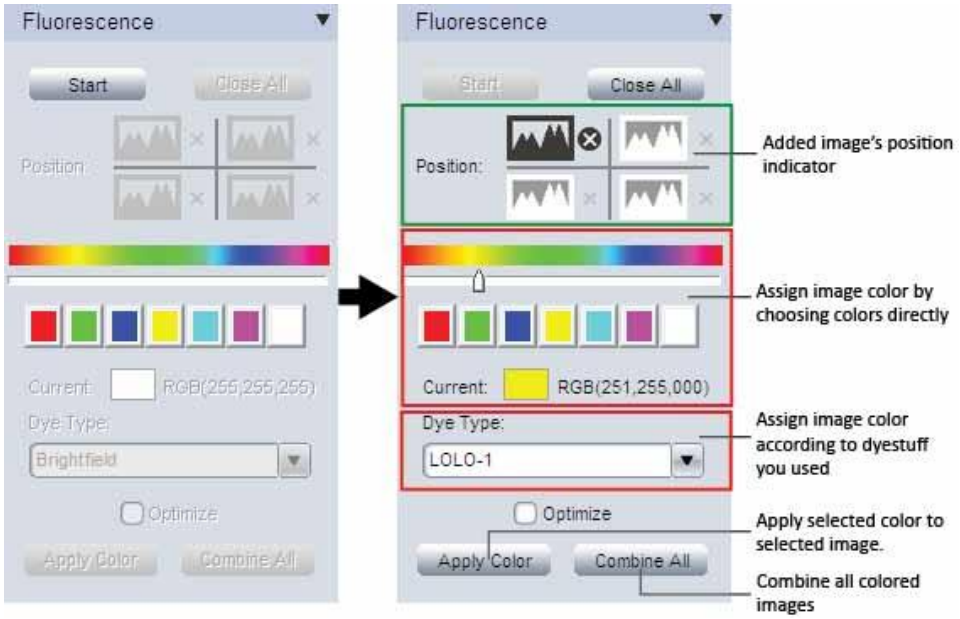
<u>Ampliando a profundidade de foco.</u>

Estender funções de profundidade de foco combina várias imagens para criar uma imagem focada. É usado para estender a profundidade de campo aparente de uma imagem. Vamos para Apêndice 3: Funções avançadas para obter mais detalhes.

Image stitching (união de imagens)

Clique em Stitching Para obter a configuração de costura de imagem. Ele combina várias imagens com sobreposição de campos de visão para produzir um panorama grande ou imagem de alta resolução. Vá para Apêndice 3: Funções avançadas para obter mais detalhes..

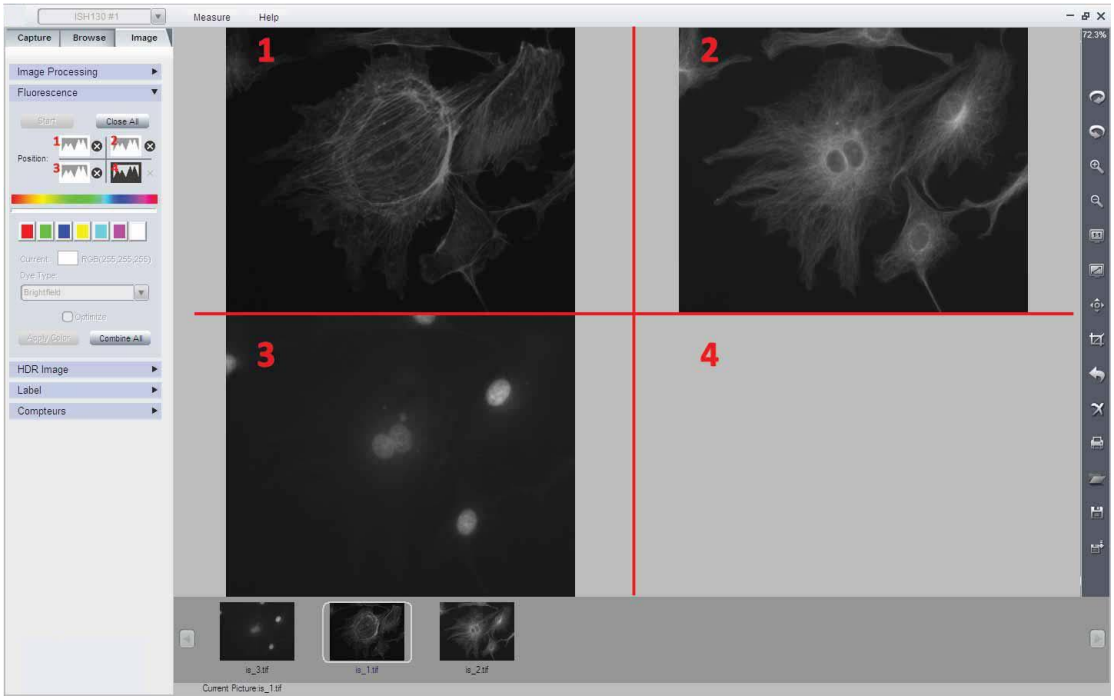
Fluorescence (Fluorescência)



Esta função é usada para atribuir imagens de fluorescência em preto e branco com cores diferentes e combiná-las em uma única imagem.

Passo 1: Abra as imagens que são usadas para combinação em IS VISICAM SOFTWARE, em seguida, clique em [Start] para iniciar a combinação de fluorescência.

Passo 2: Clique nas miniaturas das imagens para adicionar as imagens correspondentes. O indicador de posição da imagem mostra a posição das imagens adicionadas. Máximo de 4 imagens de quadro são permitidos adicionar para a combinação de fluorescência.



Step 3: Clique em um indicador de imagem adicionada para começar a aplicar uma cor para ele. (A seleção estará em cor escura, os não selecionados serão cinza branco).

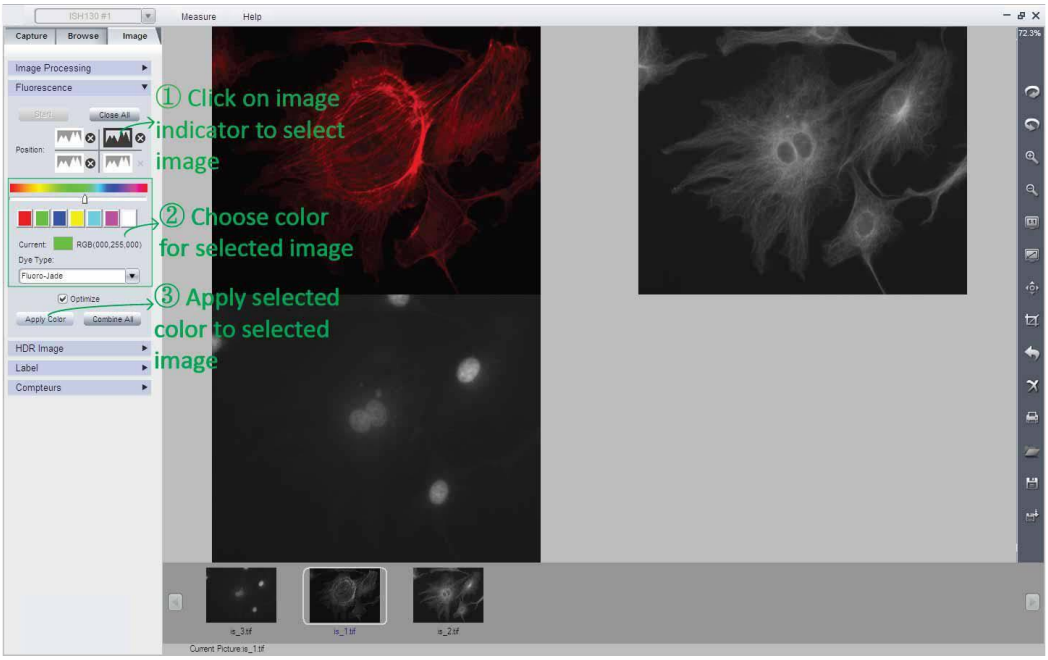
② Atribuir cor á imagem selecionada.

Duas formas de atribuição de cores:

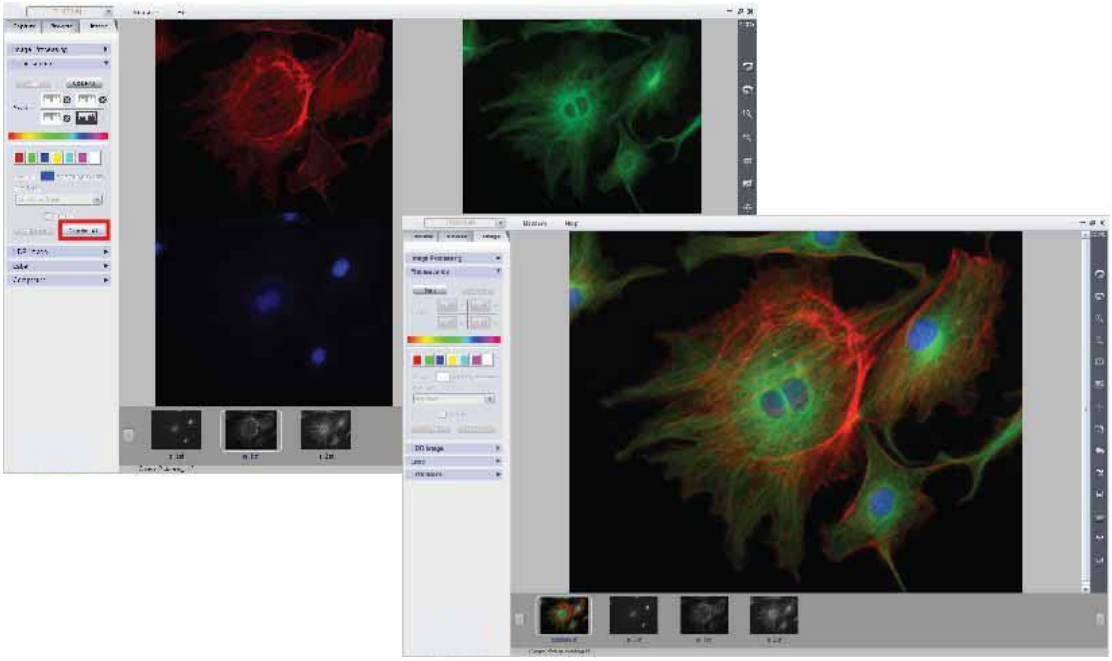
c. Clique na cor preferida ou no controle deslizante para escolher.

d. Atribua a cor de acordo com o corante fluorescente no menu [Dye Type].

③ Clique no botão [Apply Color] Para adicionar uma cor selecionada na imagem.



Step 4: Clique em [Combine All] para combinar todas as imagens coloridas.



Optimize Otimizar caixa de seleção é recomendado para seleção durante a combinação. Otimizará o plano de fundo da imagem para obter uma imagem melhor. Se a função otimizar não estiver selecionada, a imagem criada manterá todas as informações originais.

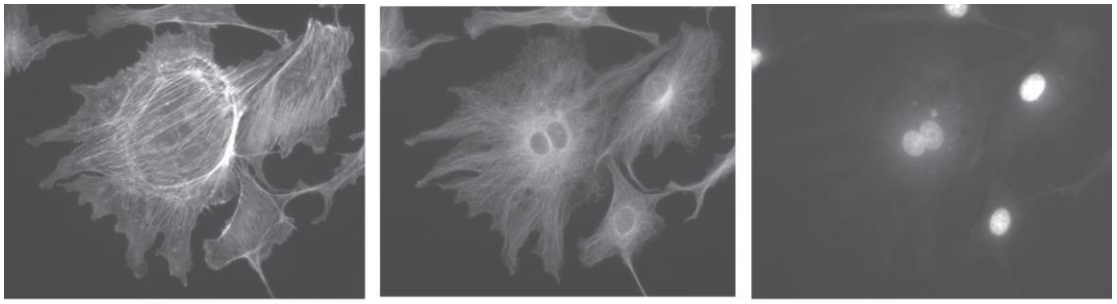
Nenhum processamento extra é aplicado aos dados da imagem.

Depois de combinar a imagem de fluorescência

A função [Sharp] em [Image Processing] pode ajudar a obter imagens mais nítidas e a ver mais detalhes da imagem.

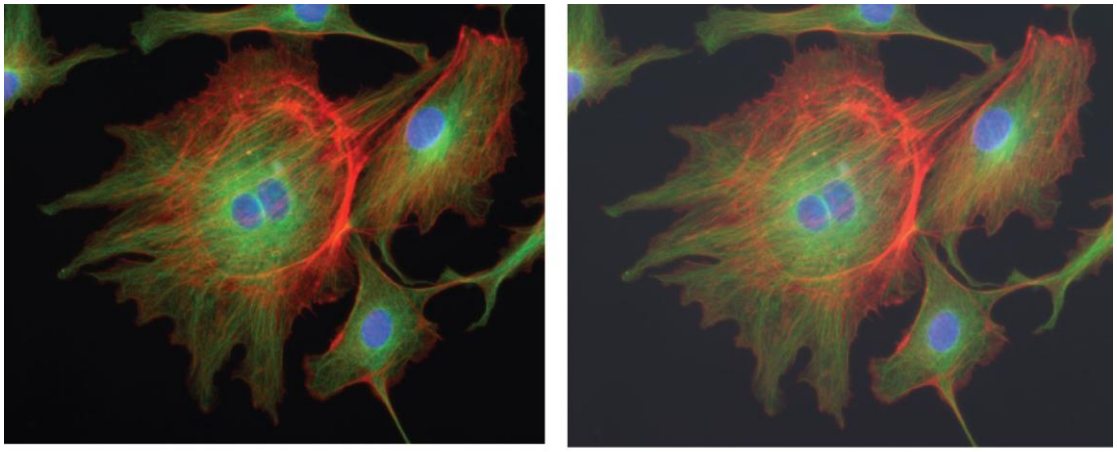
Se você adicionar a imagem errada ou a cor errada à imagem selecionada, basta clicar na pequena cruz Ao lado de cada indicador para excluí-lo. Se você deseja cancelar a combinação atual, basta clicar em [Close All] para cancelar a combinação.

Imagens originais:



Original images

Imagem combinada:

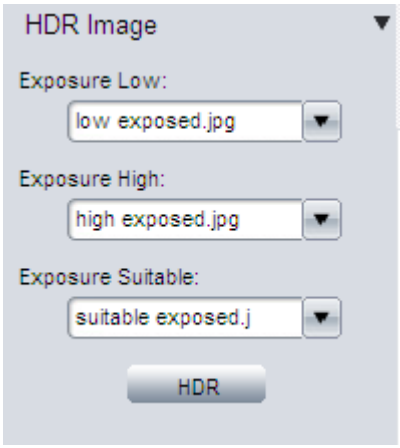


Combined image with optimization

Combined image without optimization

HDR Image

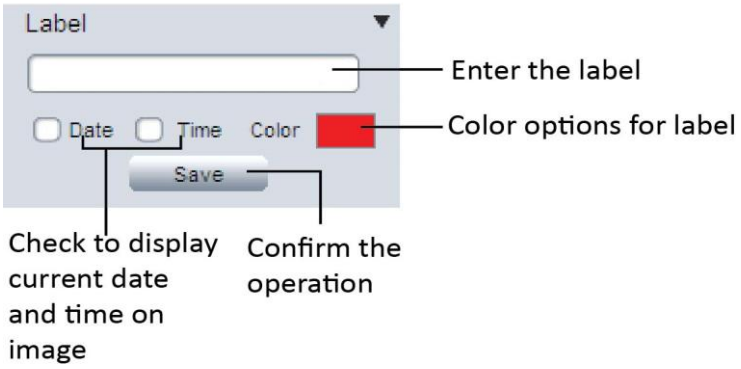
A imagem High Dynamic Range (HDR) é utilizada para obter um maior alcance dinâmico de uma imagem.



- Tirar fotos para uma mesma cena, com tempo de exposição diferente e carregá-los no software.
- No menu suspenso, selecione as imagens correspondentes [Exposure Low], [Exposure High] e [Exposure Suitable].
- Pressione o botão [HDR] para combinar diferentes imagens expostas em uma. A imagem HDR gerada será nomeada como “hdr_image”.

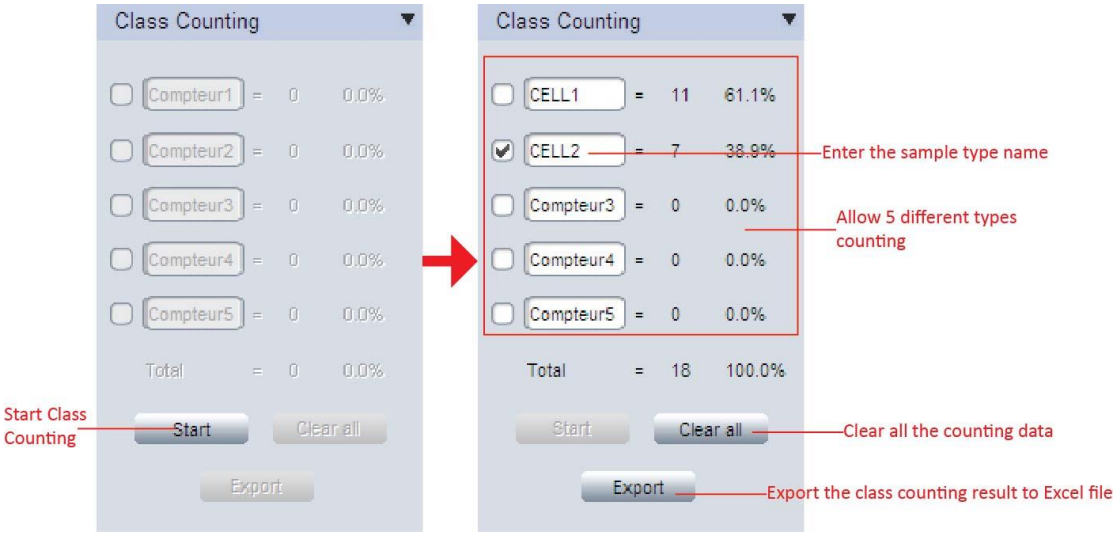
Se as diferentes imagens expostas ainda não estiverem carregadas no IS VisiCam software, o atalho  No lado direito do IS VisiCam software permite que você simplesmente navegue qualquer imagem.

Label (Rótulo)

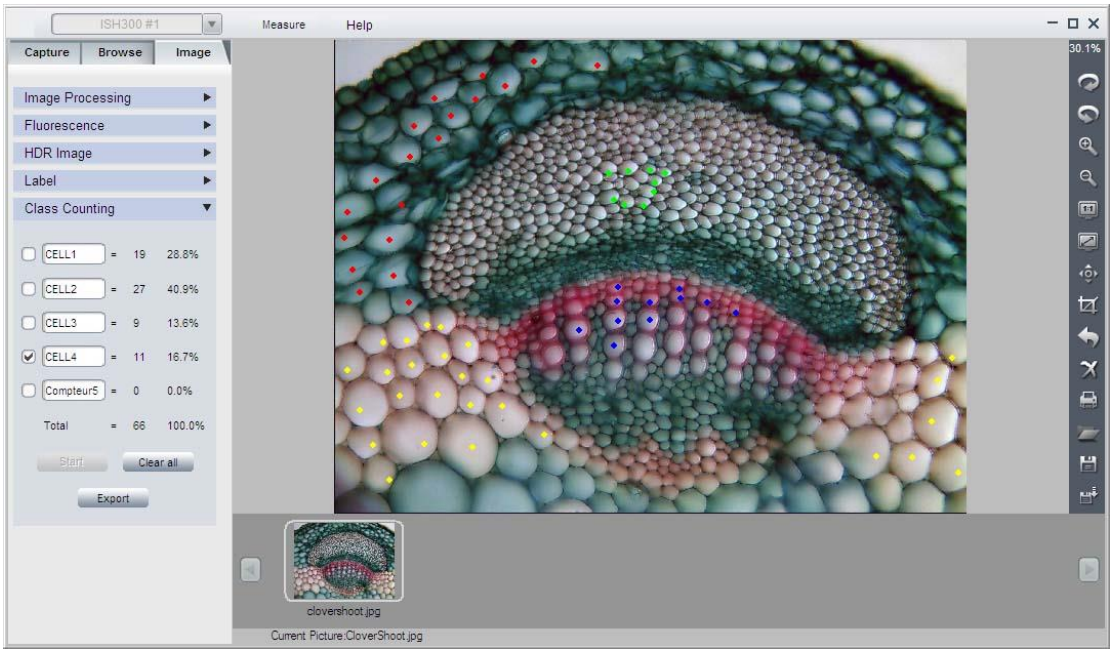


Adicione o texto da etiqueta e a data e hora na imagem. Clique em [Salvar] para salvar os rótulos.

Class Counting (Contagem de categoria)



A função (Class Counting) contagem de categorias permite fazer 5 tipos diferentes de amostras contando manualmente. Cada tipo será atribuído com pontos de cores diferentes.

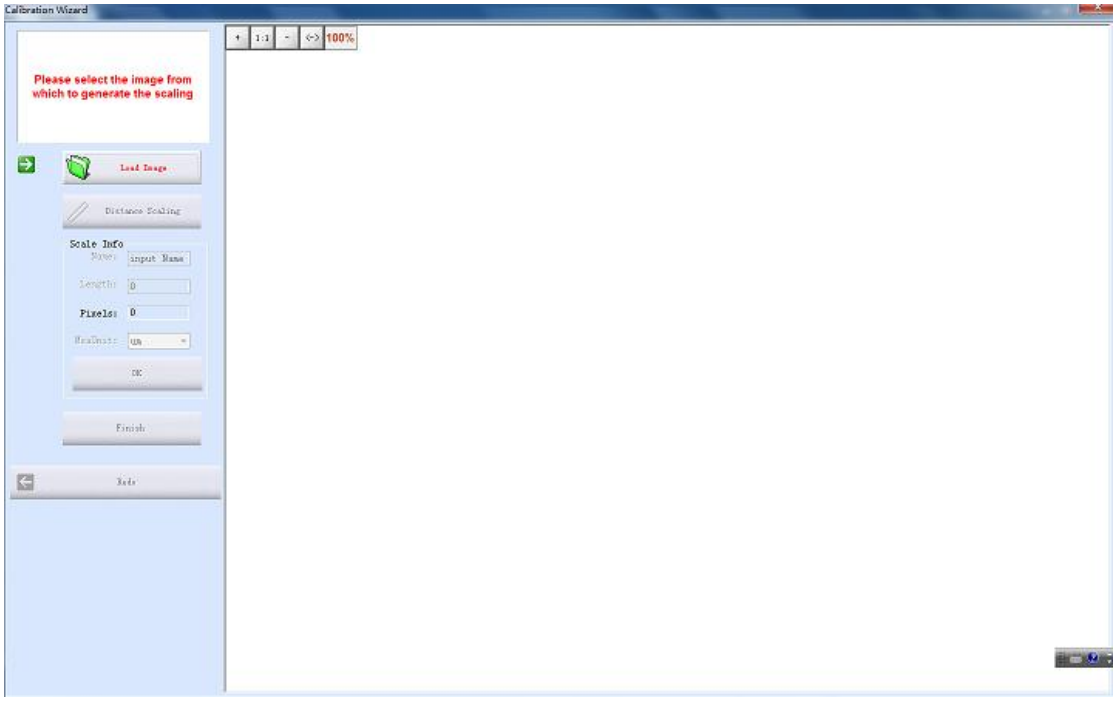


Apêndice 1: Como criar um arquivo de calibração

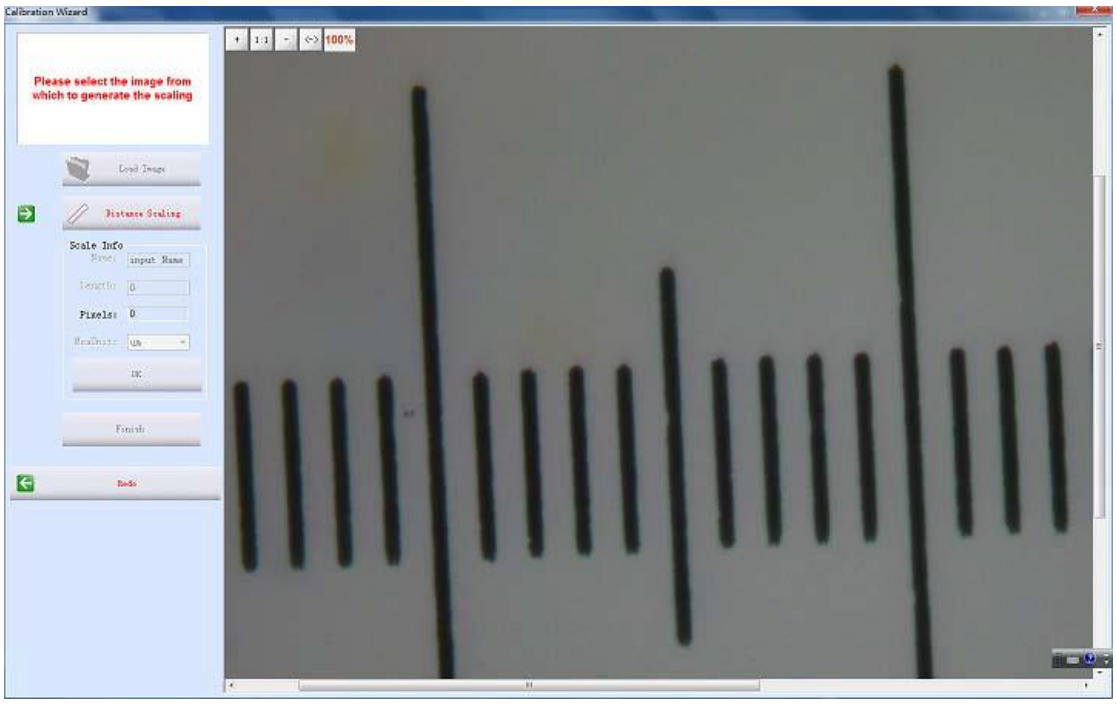
3. Tire fotos do slide de calibração em todos os objetivos de trabalho e resolução desejados (Se uma lente redutora também é usada em sua aplicação, também requer que você faça a foto de correção de calibração com a lente reduzida conectada).

Se somente um objetivo e uma resolução forem usados no aplicativo, uma imagem de slide de calibração é suficiente. A imagem do slide de calibração **DEVE** ser tomada com exatamente as mesmas configurações de lente ou microscópio que a imagem de destino tirada.

4. Clique em Para começar a criar arquivo de calibração.

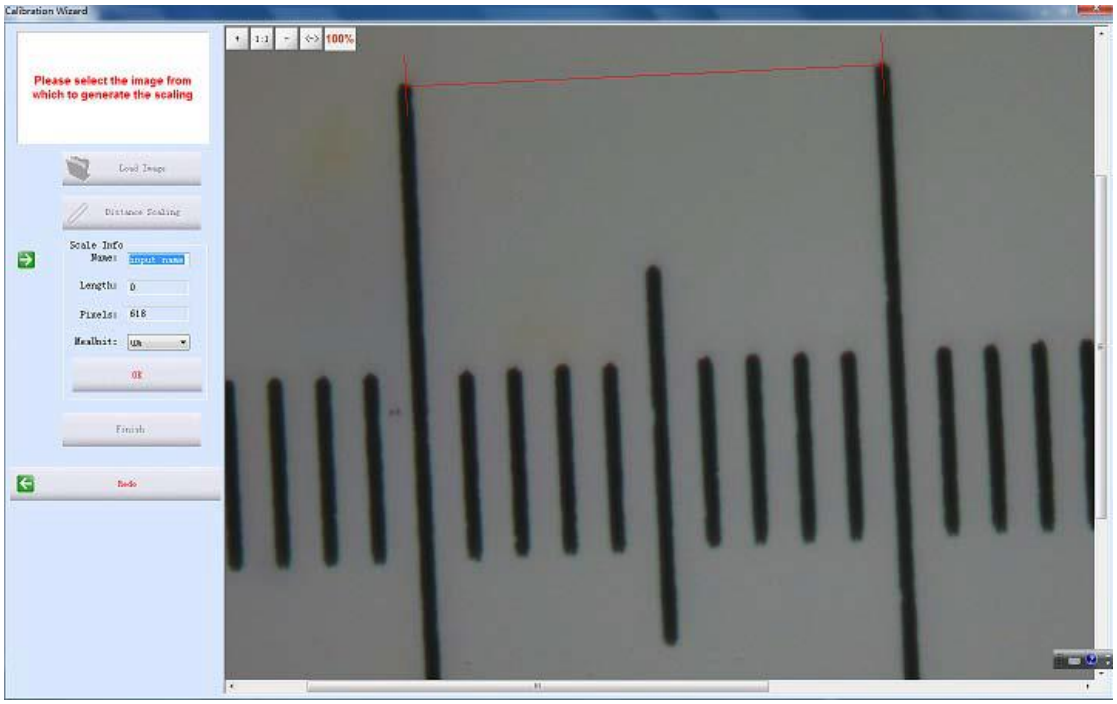


7. Clique em [Load Image] ou carregue a imagem do slide de calibração tomada no Passo 1.



8. Clique em [Distance scaling] “Escala de distância” e mova o cursor para a imagem do slide, desenhe uma linha para obter o comprimento de referência.

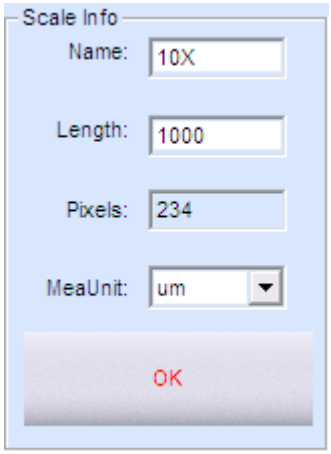
Usando comprimento mais longo como o comprimento de referência resultados de medição mais precisos. Por exemplo, usando 10 unidades de escala como comprimento de referência o resultado mais preciso que usando 1 unidade de escala.



6. Digite o nome para o arquivo de calibração e o comprimento da linha que você desenvolvida.

Se você precisar de mais de um arquivo de calibração, Objectiva + lente redutora (se for utilizada) + resolução como o nome do arquivo de calibração é recomendado. Isso pode ajudar a evitar o uso do arquivo errado para fazer a calibração.

Ao introduzir o comprimento, preste mais atenção à calibração scale unit e Measure Unit usado neste manual. Por exemplo, a unidade de escala de calibração é 0,1 mm; A Unidade de Medição é selecionada como µm; E o comprimento de referência é 10 unidades de escala, de modo que o comprimento deve ser 10 x 0,1 mm x 1000 = 1000 µm.



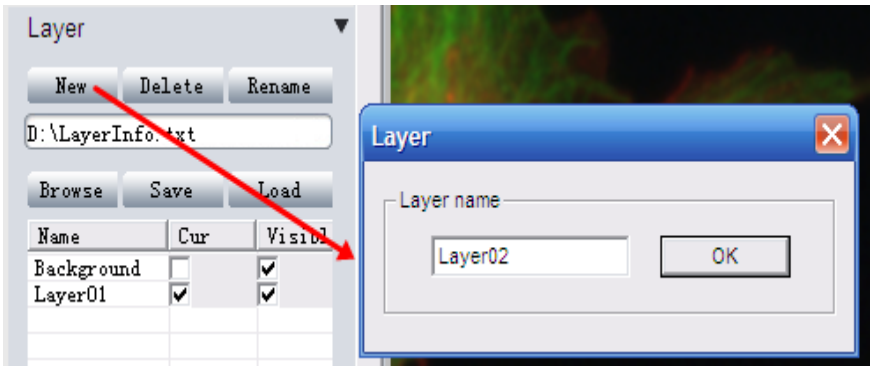
6. Clique em [OK] para confirmar a calibração. O novo arquivo de calibração chamado "10X" é criado na [Tabela de Calibração].

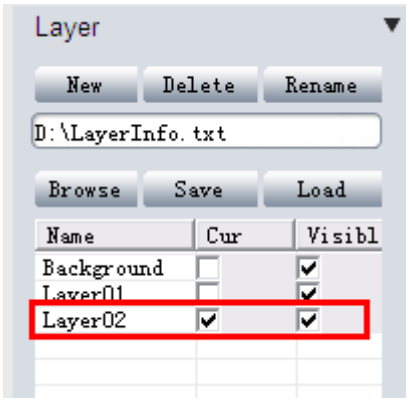
Apêndice 2: Utilizar a função Layer para medição de massa.

Quando a necessidade de aplicar a medição de massa nas imagens, algumas medições diferentes seriam sobrepostas que tornam a medida muito difícil. A função de camada permite criar várias camadas para fazer diferentes medições que farão adicionar um grande número de medições na revisão da imagem processada simples e fácil.

Se você já aplicou algumas medidas na imagem, o **[Measure]-->[Layer]** Crie automaticamente "Background" e "Layer01" para a imagem atual.

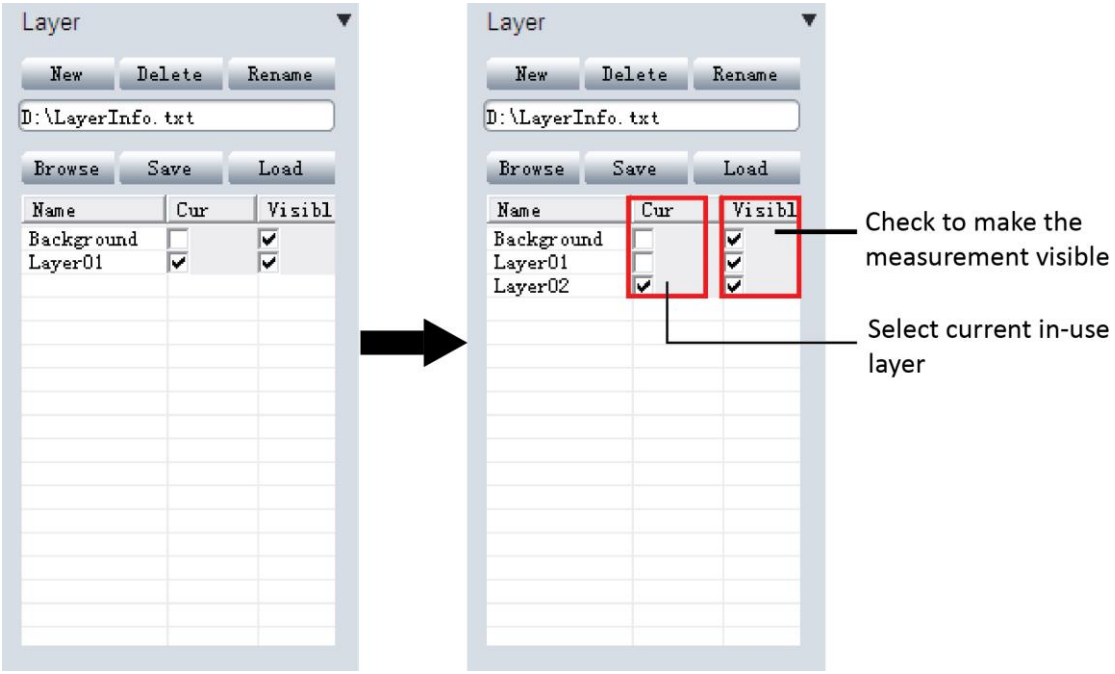
Clique em [New] para criar uma nova camada. Permitir que introduza o nome preferido para a nova camada. Ele usa "Layer02", "Layer03" ... etc como o nome da camada por padrão.

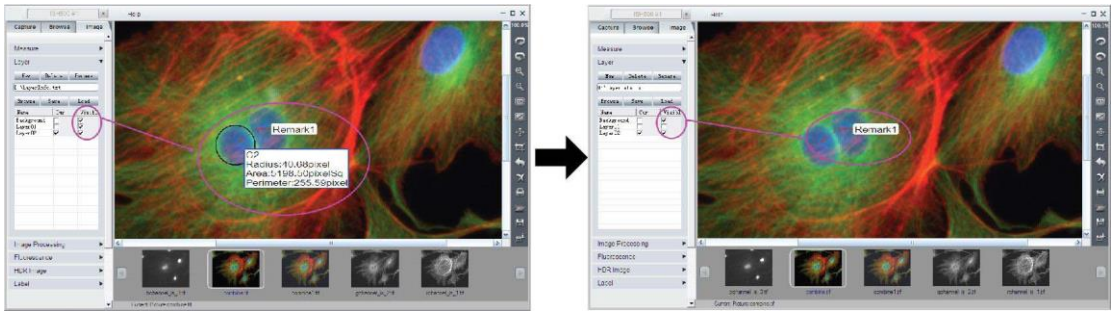




Agora, as cargas de medições podem ser aplicadas em diferentes camadas. Ele permite que você escolha qualquer camada para ver.

Verificado [Cur] Significa que a camada correspondente é exibida atualmente. Selecione diferentes [Cur] Para alternar entre camadas diferentes. Na coluna [Visível], a caixa de seleção selecionada significa que todas as medidas nas camadas correspondentes também são exibidas na camada atual. Desmarque a caixa de seleção e a medida correspondente será invisível na camada atual.





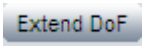
As informações da camada são salvas em um arquivo de texto.

- Clique [Browse] para escolher o arquivo de texto salvando diretório e digite o nome do arquivo. Em seguida, clique em [Salvar] para salvar as informações da camada atual no arquivo de texto. As informações de camada serão salvas como "LayerInfo.txt" no disco D por padrão
- Clique em [Procurar] para localizar o arquivo de texto da informação da camada existente. Clique em [Carregar] para carregar as informações da camada para a imagem atual.

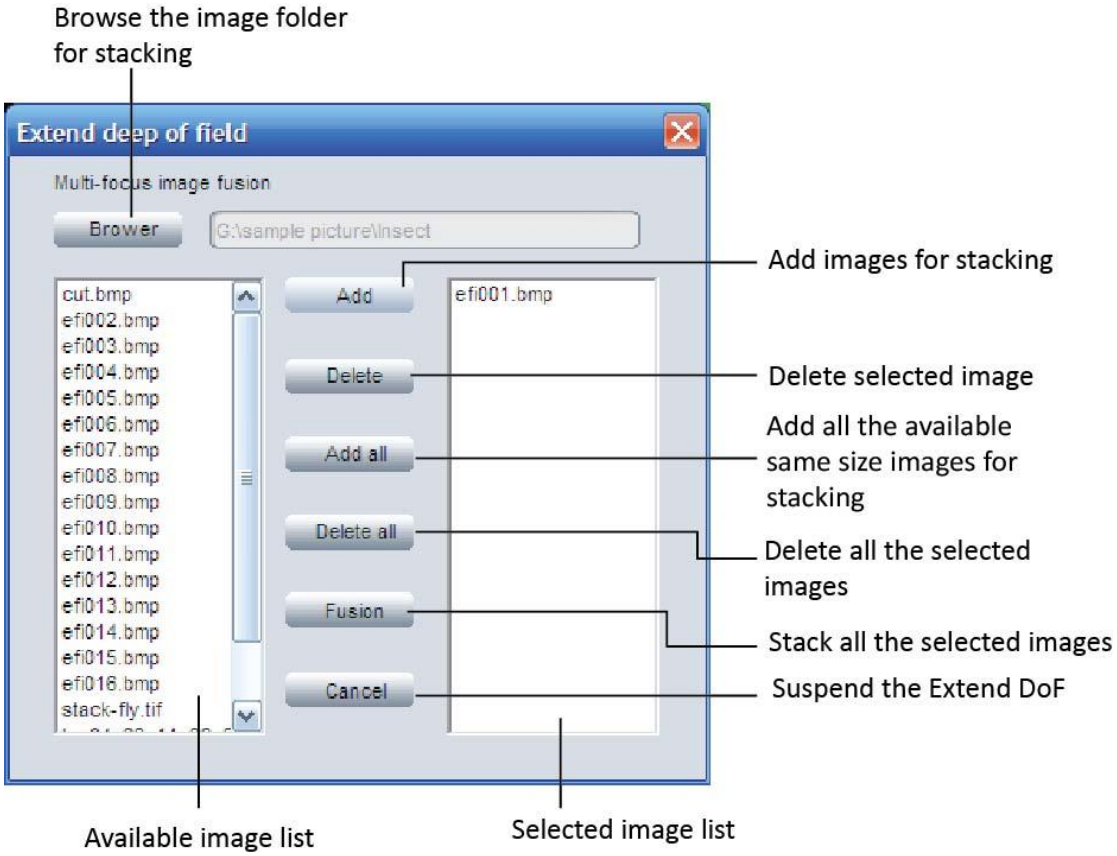
Apêndice 3: Funções avançadas

Amplie a profundidade de foco

Estende funções de profundidade de foco e combina várias imagens para criar uma imagem focada. É usado para ampliar a profundidade de campo aparente de uma imagem.

Pressione [Extend DoF] 

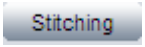
Para obter abaixo da caixa de diálogo. Selecione as imagens correspondentes e aplique a função. Esta função combina várias imagens para criar uma imagem focada.



- Navegue na pasta de imagens que você irá gerar a sequência.
- Todas as imagens na pasta serão listadas no lado esquerdo. Clique em uma imagem, ela será destacada em AZUL.
- Clique em [Adicionar] para adicionar a imagem realçada ao lado direito (as imagens de origem seleccionadas para empilhar).
- O botão [Adid all] permite adicionar o mesmo tamanho Imagens do lado esquerdo para a direita, como imagens de um clique.
- Clique [Fusion] Para empilhar todas as imagens de origem selecionadas e obter uma imagem com uma profundidade de campo alargada.

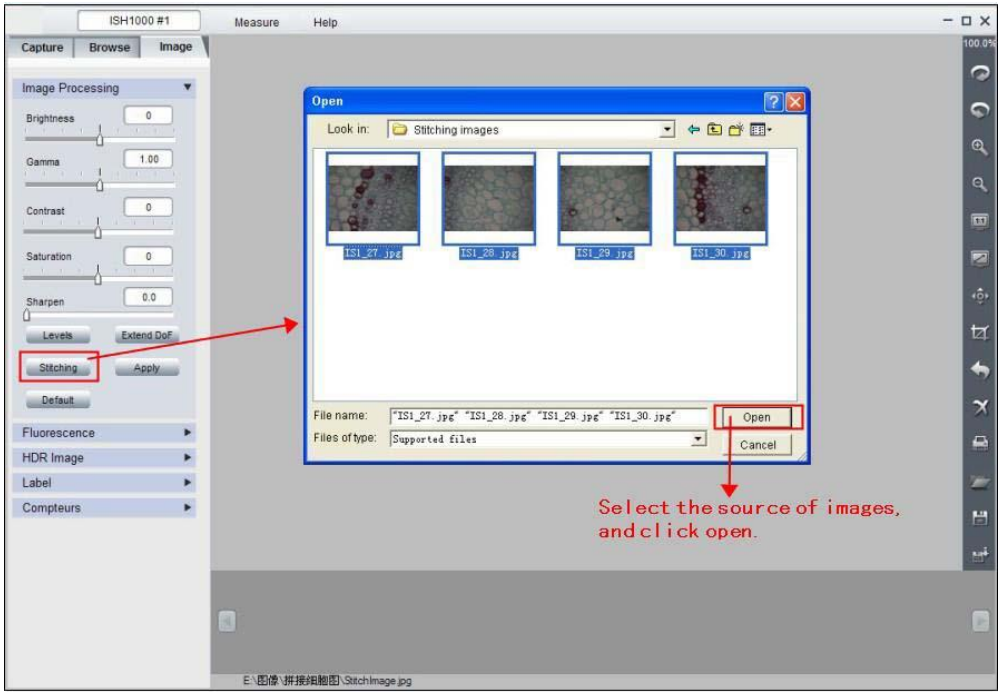
 Ao selecionar uma imagem errada como fonte de empilhamento, basta clicar nele e clicar em [Delete] para removê-la. [Delete all] removerá todas as imagens selecionadas.

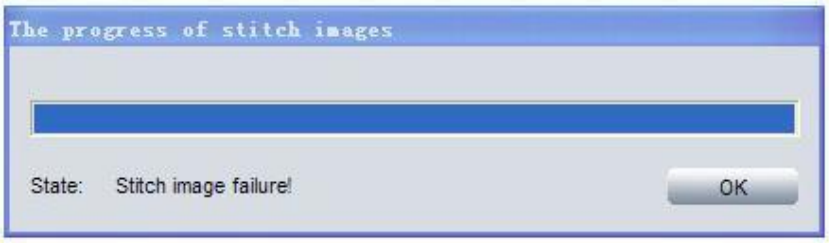
Image stitching (união de imagens)

Clique em 

Para obter a configuração de mistura de imagem. Ele combina várias imagens com sobreposição de campos de visão para produzir um panorama grande ou imagem de alta resolução.

4) Clieque em [Open] para navegar nas imagens de origem de costura. Selecione todas as imagens de origem em aberto.
5) Clique em [Stitching] para começar a coser todas as imagens de origem.
6) Clique em [Save] Para salvar a imagem costurada no mesmo diretório como as imagens de origem com o nome da data e hora marcada.





Se a imagem de origem não atender os requisitos, você será solicitado a falha de mistura de imagem!

Domicilio legal del fabricante

Europa

VWR International BVBA
Researchpark Haasrode 2020
Geldenaaksebaan 464
B - 3001 Leuven
+ 32 16 385011
http://www.vwr.com

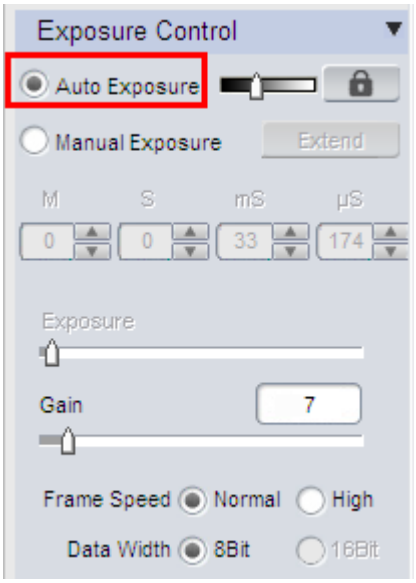
Contenido de la caja

Descripción	ECN#	Ctd
CD-ROM con controladores y software		1

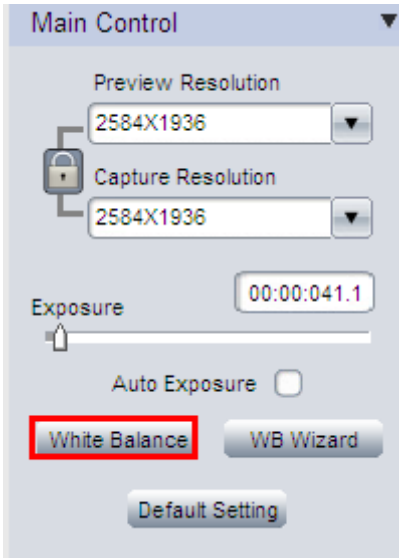
Sistema recomendado

- PC IBM compatible con: Windows7 / 8 / 10 (32&64 bit)
- RAM: 512 MB, Disco duro: al menos 250 Gb
- Interfaz USB 2.0
- Unidad de CD-ROM (para instalar los drivers y el software)

Configuraciones de IS VisiCam Iamge Analyser software



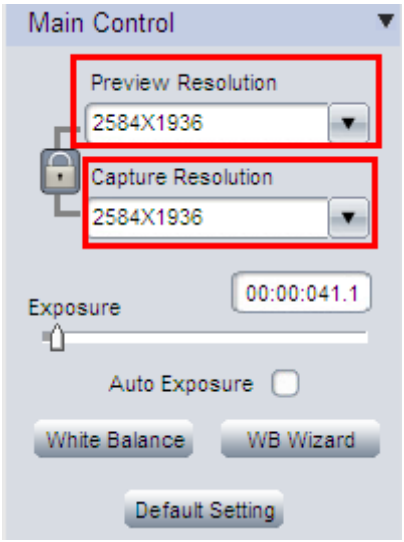
1. Configurar **Auto Exposure** (Exposición automática). Mirar el enfoque y regular el microscopio (o el objetivo) para enfocar la imagen.
Normalmente la función de exposición automática puede obtener un enfoque con la correcta luminosidad. Si el enfoque resulta aún borroso, configure manualmente el **Gain** (Aumento) en el centro del cursor.



Cuando se obtiene un zoom enfocado, lleve el **Gain** al valor inicial, pase al modo manual de exposición y prolongue el tiempo de exposición de forma manual hasta obtener imágenes con la luminosidad correcta.

2. Haga clic en el botón de **White Balance** (balance de blancos) para corregir el color de la imagen.

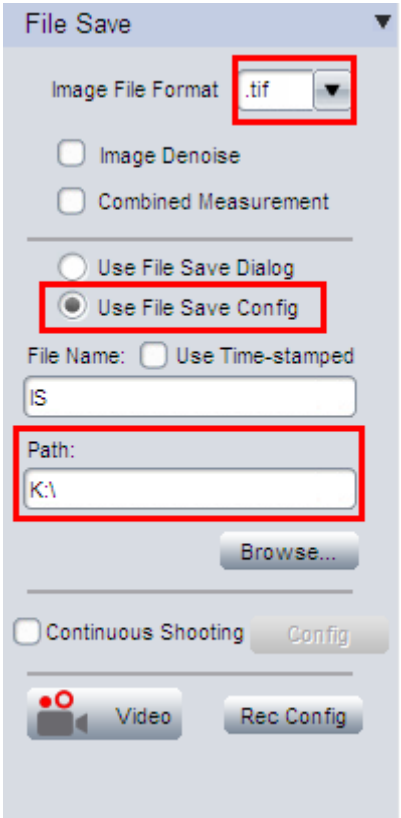
Para obtener un resultado mejor del balance de blancos, se ruega desplazar el portaobjetos hasta una zona vacía y luego, pulsar la tecla de **White Balance**, y luego, volver a colocar el portaobjetos con la muestra. Como alternativa se puede pulsar **WB wizard** (procedimiento guiado) y seguir las indicaciones para completar el balance de blancos.



3. Cambie la resolución para el enfoque y capture imágenes con distintas resoluciones.

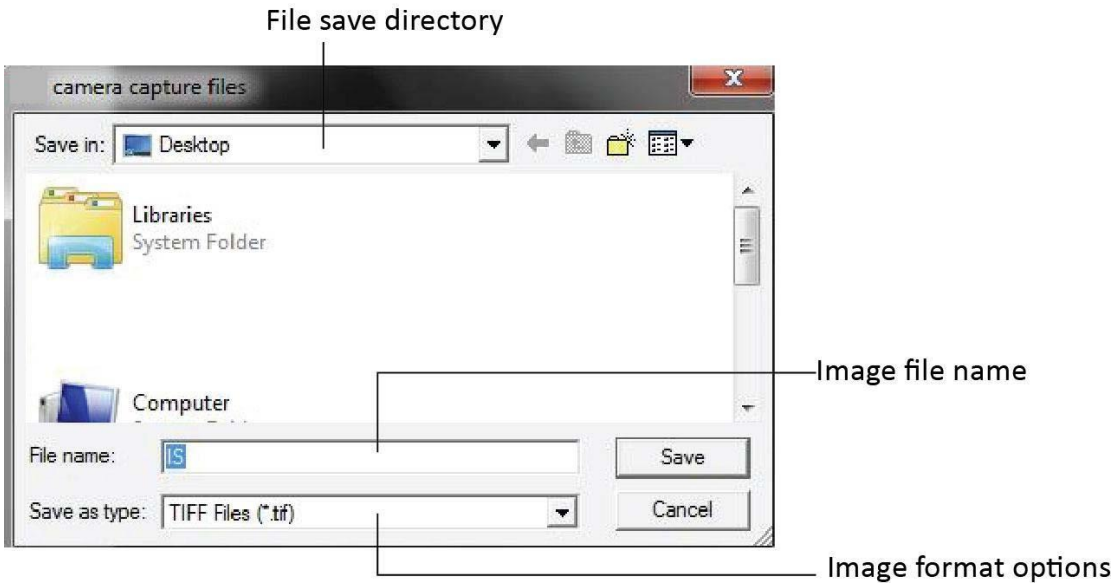
Haga clic en el icono de bloqueo  para bloquear / desbloquear la resolución del enfoque y de la captura. Al desbloquearlo se permite configurar las distintas resoluciones de enfoque y de captura (únicamente se usa baja resolución para el enfoque con alta resolución en la captura).

5. Seleccione el panel **File Save** (Guardar archivo) para configurar el formato de guardado, directorio y el nombre del archivo.



a. Seleccione **Use File Save Config** para preconfigurar el formato de captura de la imagen, el directorio en el que guardarla y el nombre del archivo.

b. Seleccione **Use File Save Dialog** para hacer que una ventana emergente aparezca y poder configurar el formato de captura de la imagen, el directorio donde guardarla y el nombre del archivo.

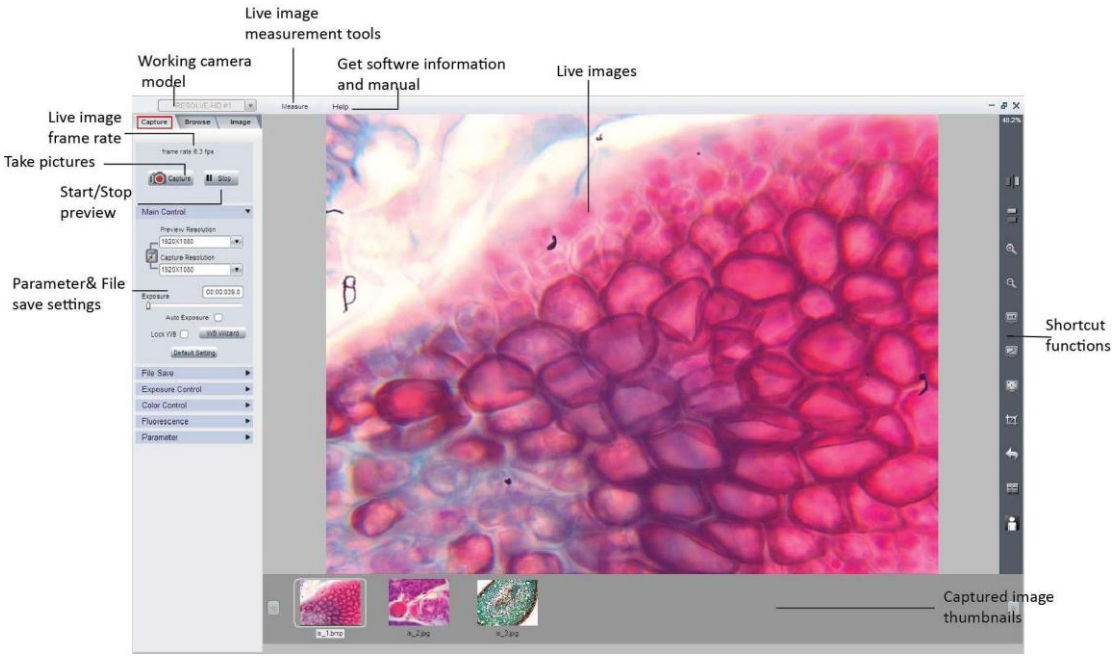


Cada vez que haga clic en el botón de Capture (captura) 

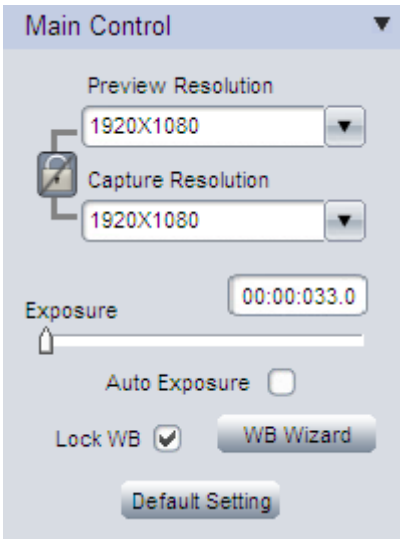
, se abrirá la ventana de guardado para requerirle el nombre del archivo, la carpeta y el formato deseado.

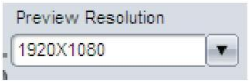
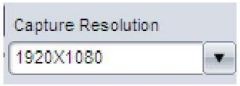
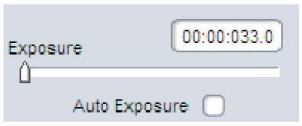
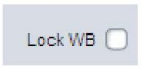
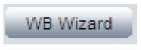
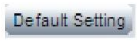
Capítulo 2: Captura de Imagen

Regule los parámetros de la telecámara para obtener buenas imágenes en vivo, los tamaños de la imagen y guardar imágenes y vídeo.



Controles básicos

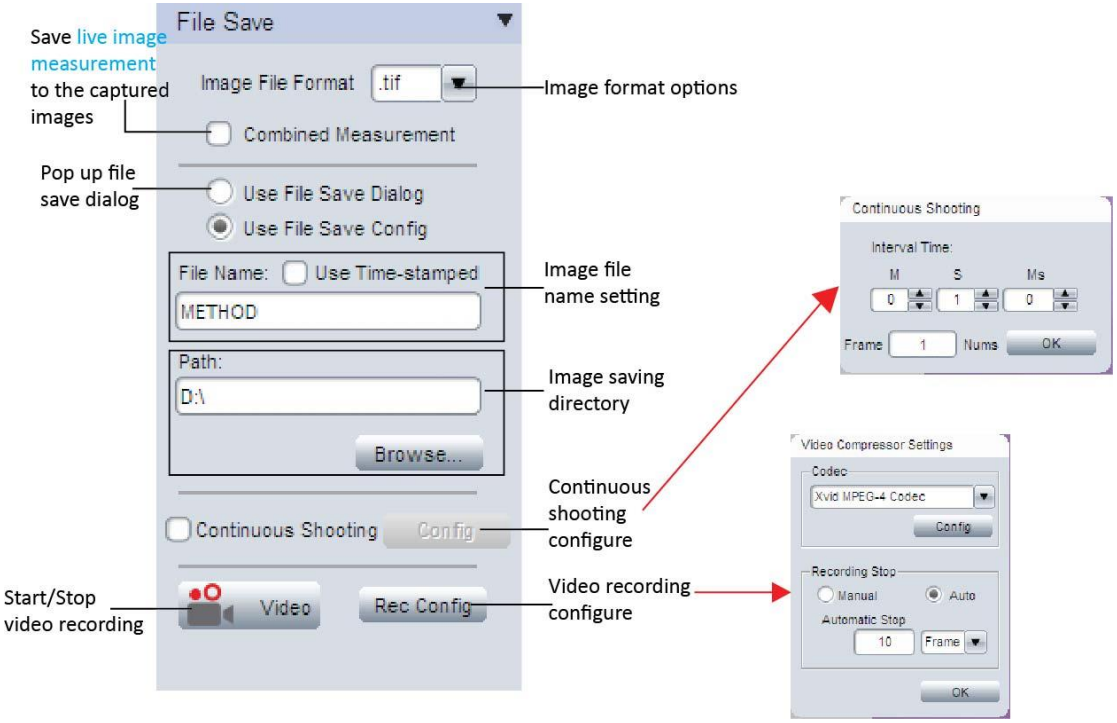


	Live image resolution	Select resolution for live image
	Captured image resolution	Select resolution for capturing
	Exposure Time	Change Exposure time to adjust image brightness. Auto Exposure mode will adjust proper brightness image automatically.
	Lock White Balance	Unchecked: Auto White Balance mode. Apply white balance calculation for every frame image. Checked: Lock the White Balance calculation result.
	White Balance Wizard	Wizard for getting better White Balance result.
	Default settings	Restore all the parameters to default value

Tras haber configurado la luminosidad de la imagen en vivo, se recomienda aplicar el balance de blancos para corregir el color de la imagen en vivo. Para obtener los mejores resultados del balance de blancos, se aconseja seguir los siguientes pasos:

1. Mover el portaobjetos con la muestra hasta una zona vacía;
2. Deseleccionar [Lock WB];
3. Cuando la imagen alcance el color correcto, seleccione la casilla de bloqueo [Lock WB];
4. Traer de nuevo el portaobjetos a donde se encuentra la muestra.

Capturar imágenes y vídeo

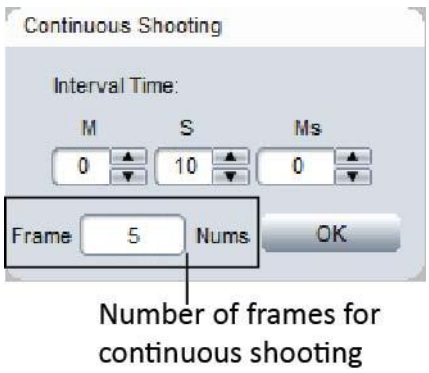


- En el menú desplegable [File Format], hay disponibles 4 formatos de archivo: JPEG, BMP, TIFF y RAW.

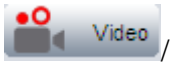
Los archivos de imagen con formato RAW contienen datos procesados al mínimo por la fotocámara. Necesitan ser leídos por determinados programas especiales (por ejemplo Photoshop, imagj, etc.).

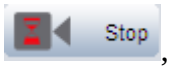
Disparo en ráfaga (Continuous Shooting)

- Haga clic en la casilla de control **Continuous Shooting** [Disparo en ráfaga] Continuous Shooting, el software guardará automáticamente una serie de imágenes después de realizar un único disparo.
- Haga clic en [Config] para configurar el número de imágenes que se desea capturar y el intervalo de tiempo.



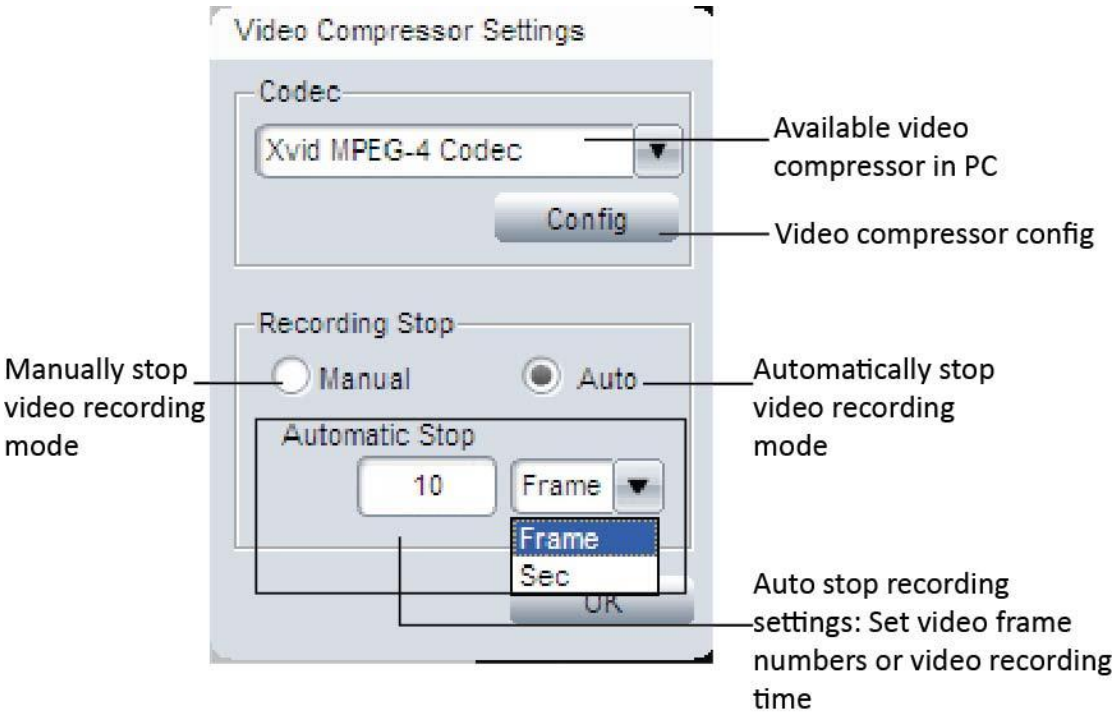
Grabación de vídeo

Haga clic en [Video] 

/ 

, para iniciar/detener la grabación de vídeo.

Haga clic en [Rec Config] para abrir la ventana de configuración de la grabación de vídeo.



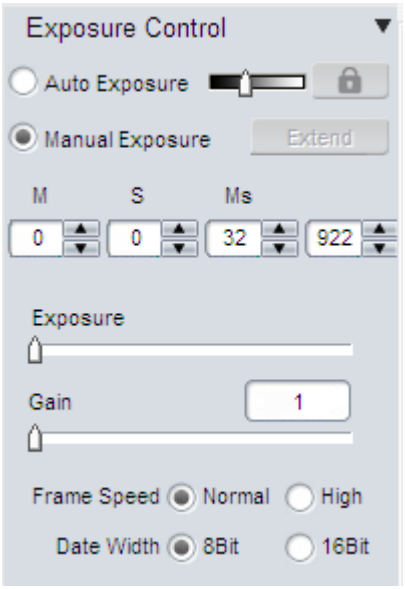
Existe el modo [Manual] y [Auto] para detener la grabación.

- En el modo [Manual], se debe pulsar la tecla [Video] para iniciar y detener la grabación.
- En el modo [Auto], se puede preconfigurar el número de fotogramas o el tiempo de grabación; cuando se pulsa el botón [Video], el software detendrá la grabación automáticamente tras haber guardado el número configurado de fotogramas o tras el tiempo de grabación preestablecido.
- [Rec Config] >> [Codec] muestra una lista de todos los compresores de vídeo disponibles en el ordenador.

El vídeo grabado sin ninguna compresión tendrá grandes dimensiones. El software buscará automáticamente los compresores de vídeo instalados en el ordenador.

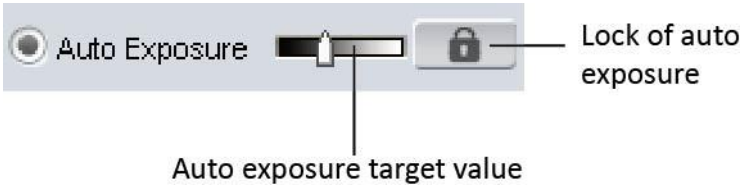
Control de la exposición

Modifique el tiempo de exposición y el aumento para regular la luminosidad de la imagen. Seleccione la velocidad de los fotogramas (Frame speed) para obtener distintas frecuencias de cuadros para las imágenes en vivo.

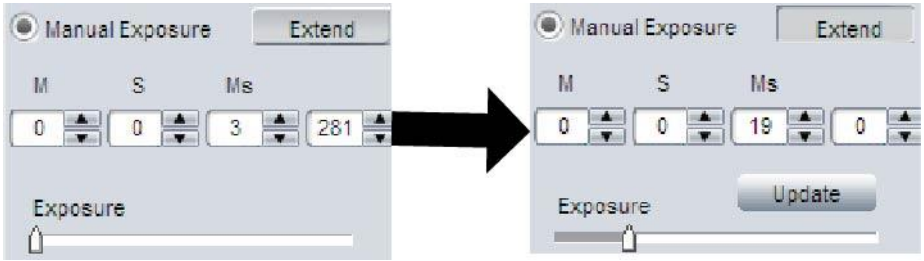


Exposición automática

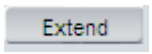
- Seleccione la casilla de control [Auto Exposure], y el software comenzará a regular el tiempo de exposición automáticamente para obtener la correcta luminosidad de las imágenes en vivo.
- Valor objetivo de la exposición automática (: seleccione el tiempo de exposición de referencia para la regulación de la exposición automática.
- Bloqueo (Lock): detendrá el cálculo de la exposición automática.



Exposición manual



Permite regular el tiempo de exposición manualmente.

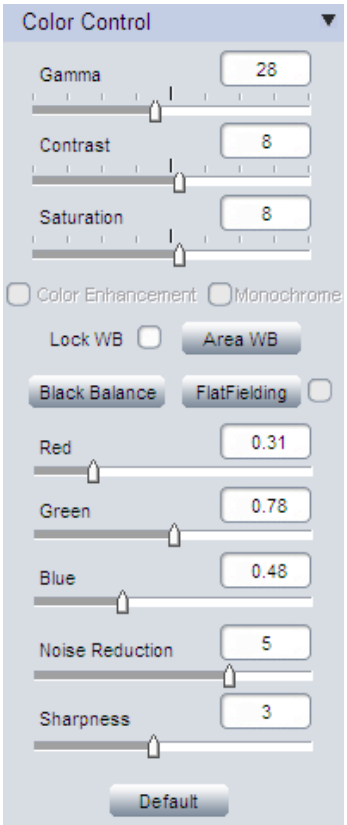
[Extend]  se utiliza para obtener un tiempo de exposición prolongado. Esta función está disponible **sólo** para la telecámara **CCD**. Para el resto de telecámaras, en especial la fotocámara CMOS, el tiempo de exposición máximo es inferior a 1 segundo, por lo que la opción [Extend] está desactivada.

[Update] Update aparece después de seleccionar [Extend]. Haga clic sobre ésta para apagar el tiempo de exposición anterior y reanudar de inmediato el nuevo. Para las aplicaciones con exposiciones largas, se recomienda usar [Update] para iniciar la nueva configuración. Esto contribuirá a obtener más rápidamente la imagen con la nueva exposición. Si el tiempo de exposición es inferior a 2-3 segundos, no es necesario usarla.

Aumento, velocidad de los cuadros y profundidad del dato (data Width)

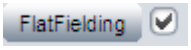
Gain		Increase the power of the image data. Higher gain gives brighter images, but also makes the noise signal more obvious.
Frame Speed	High Speed	Corresponding to high pixel clock. Gives faster frame rate.
	Normal Speed	Offer lower frame rate than High Speed, but gives longer maximum exposure time.
Data Width	8-bit	8-bit images use 2^8 = 256 gray levels to represent image details.
	16-bit	16-bit images use 2^16 gray levels to represent image details. ONLY available for CCD & Discovery series cameras in .Tiff and .Raw formats.

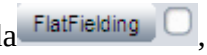
Control del color



Función Campo plano

La función de Flat Fielding se usa para corregir una luminosidad no uniforme del fondo de la imagen.

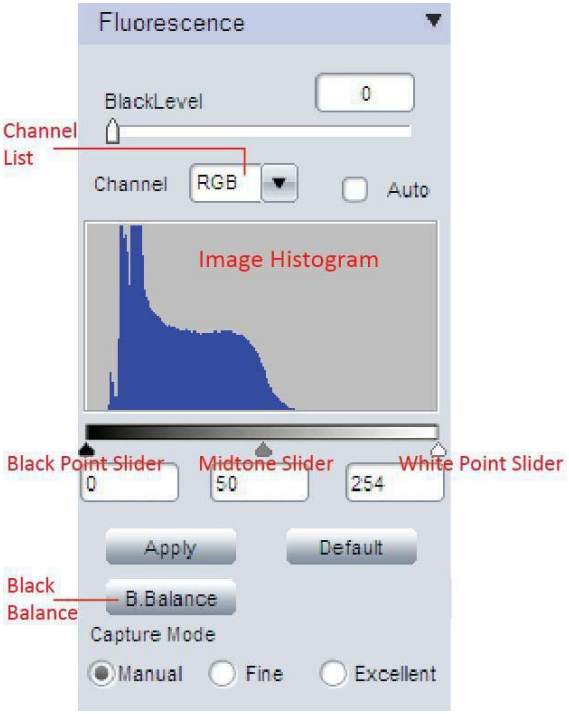
- Haga clic en [FlatFielding] 

para iniciar el cálculo de los parámetros de uniformidad del fondo y aplicarlos a la imagen en vivo.
- Cuando la casilla no está seleccionada 

, los parámetros de uniformidad del fondo no se aplican a la imagen en vivo.

Para obtener un mejor resultado de uniformidad del fondo, desplace antes la muestra hasta una zona vacía, vuelva a aplicar el [FlatFielding], y luego, coloque nuevamente la muestra.

Cuando la iluminación cambie, vuelva a aplicar el [FlatFielding] para corregir la luminosidad del fondo no uniforme.



Parámetros para la fluorescencia

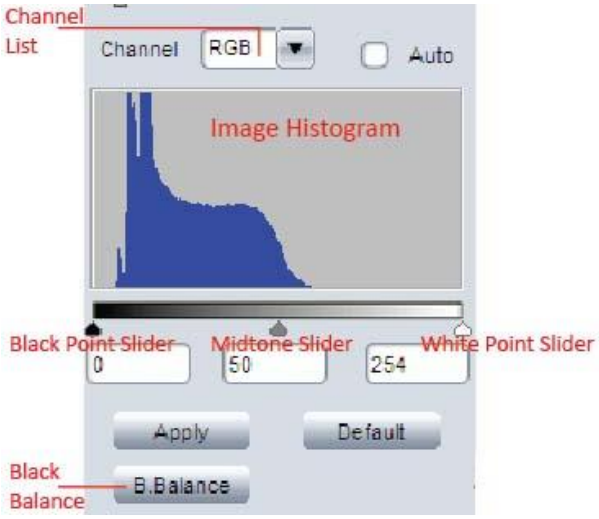
Incluso en el software, hay parámetros útiles para su uso en aplicaciones con fluorescencia o en general, con poca luz. Ayudan a obtener mejores imágenes de una forma más sencilla y rápida.

Nivel de negro

La función Black Level (nivel de negro) define el nivel de luminosidad en la parte más oscura de la imagen. Con imágenes con escasa iluminación, ayuda a ver los detalles en las zonas oscuras.

En aplicaciones con escasa luminosidad, por lo general se precisa de un tiempo de exposición bastante prolongado para obtener imágenes correctas. Si se configura un tiempo largo de exposición al inicio podría ser necesario mucho tiempo para encontrar la muestra a observar y

obtener una buena imagen (se debe esperar el largo tiempo de exposición para obtener una nueva imagen, regularla, y volver a esperar...). Al inicio, durante la búsqueda de la imagen a observar, se recomienda configurar un tiempo de exposición breve, para incrementar el aumento (Gain) y el nivel de negro. Tras haber identificado la imagen a observar, se puede reducir el valor del aumento y el nivel de negro, y por consiguiente, aumentar el tiempo de exposición. Esto ayudará a enfocar mejor y más rápido la imagen.



Niveles

El uso del instrumento levels (niveles) puede mover y prolongar los niveles de luminosidad en el histograma utilizando tres componentes principales: un punto negro, un punto blanco y el cursor de los tonos medios.

Channel List (Lista de canales): permite elegir si se desea modificar los canales RGB o uno de los tres canales de color de forma individual (rojo, verde y azul).

[Auto] casilla de control: regula automáticamente los niveles de la imagen en vivo.

[Manual] casilla de control: regulación manual de los niveles de la imagen.

Mueva el cursor del punto de blanco hacia la izquierda, para mostrar la información en la zona oscura. Si se mueve el cursor del punto de negro hacia la derecha, se mostrará la información en la zona luminosa.

Tras haber regulado los niveles, haga clic en Apply para confirmar la configuración. Si necesita volver a la imagen original, haga clic en Default para reiniciar por defecto la imagen.

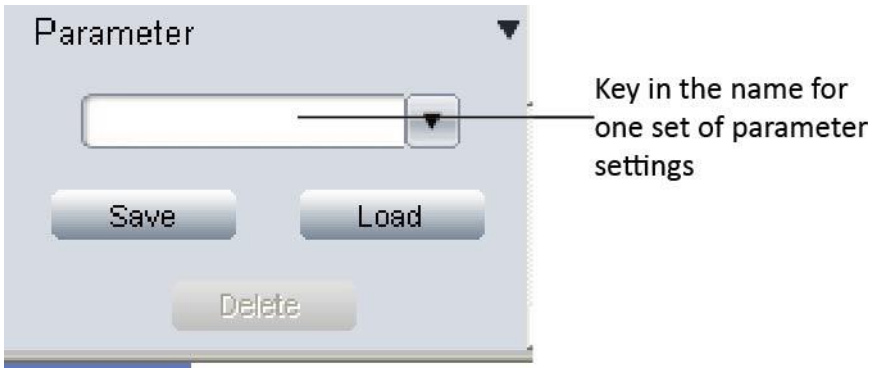
[Black Balance] (Balance de negros): proporciona a la telecámara una referencia del “negro real”. Necesario SÓLO en aplicaciones de dark field (campo oscuro).

Modo captura

Existen tres modos de captura desarrollados especialmente para las aplicaciones con fluorescencia.

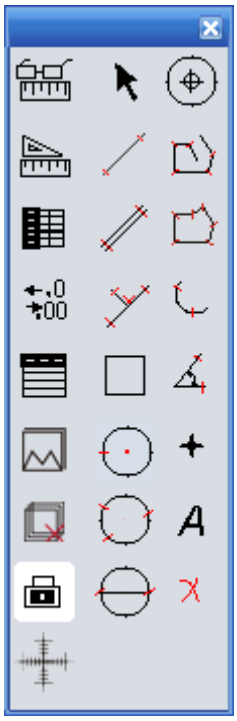
Manual	Capture the image with current parameter settings
Fine	Automatically reduce the gain and extend the exposure to get the same brightness image. (Lower gain will give lower noise level images)
Excellent	Automatically save 10 images with current settings and then get an average image. (It needs to take a while to capture an image in this mode.)

Grupos de parámetros



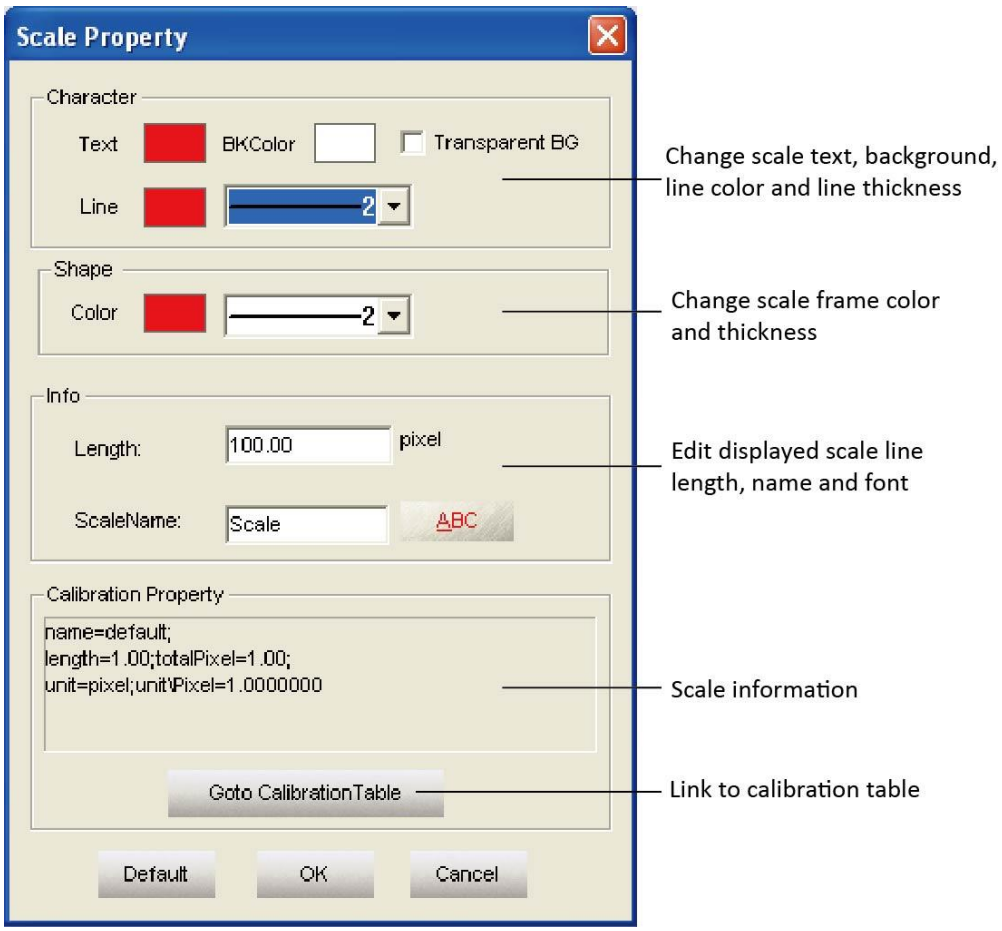
Guarde la configuración de los parámetros para las distintas aplicaciones. Los parámetros memorizados comprenden el tiempo de exposición, el aumento, la velocidad de los fotogramas, la profundidad de los datos, la gradación, el contraste, la saturación, el estado de mejora del color, blanco y negro, el aumento RGB y el nivel del negro. Se pueden guardar hasta 20 configuraciones de parámetros.

Capítulo 3: Mediciones de las imágenes en vivo y tomadas



	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
	Polyline	Measure polyline length.
	Polygon	Measure polygon area and perimeter.
	Arc	Measure a curve angle, radius and length.
	Angle	Measure the angle
	Count	Counter. Manually 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.

Modificar la escala de las líneas



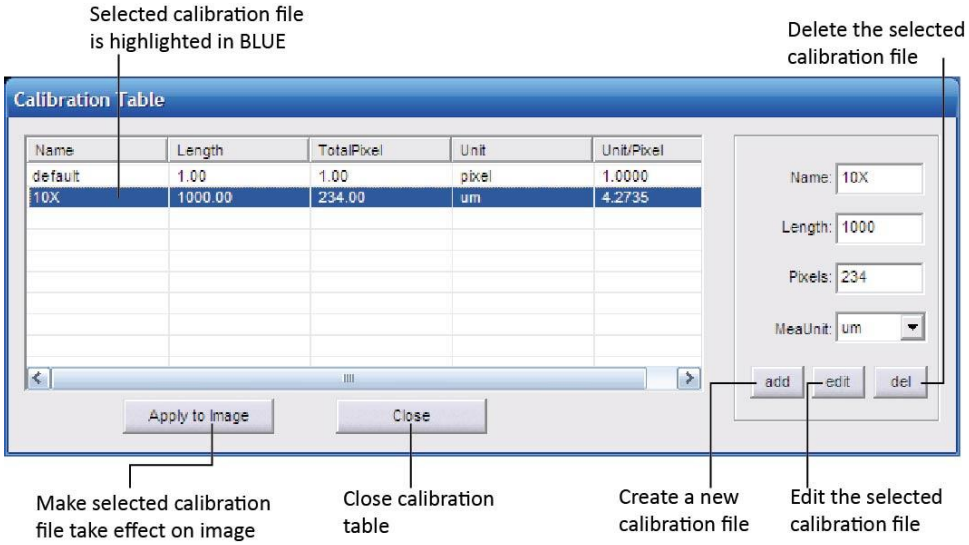
Haga clic dos veces sobre la escala para ver sus propiedades y poder modificarlas.

Crear Archivo de Calibración

Para medir la medición real de las muestras, debe crearse primero la tabla correspondiente de calibración.

Consulte el Anexo 1 para obtener más detalles sobre la calibración de las mediciones.

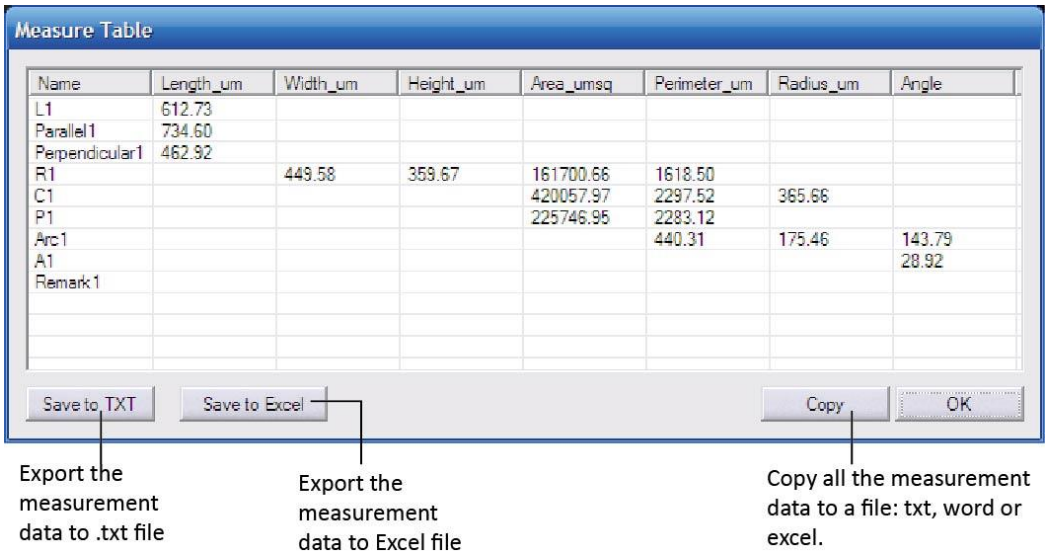
Tabla de calibración



- Haga clic en  Calibrate Table [Tabla de calibración] para abrir la tabla de calibración.
- Seleccione el archivo de calibración correcto para la adecuada medición sobre la imagen actual.

Si se usa el archivo de calibración erróneo, se obtendrá un resultado incorrecto de la medición. Asegúrese de que el archivo de calibración se corresponde con la imagen actual. Por este motivo, es útil ponerle un nombre al archivo de calibración con las configuraciones de reanudación o el nombre del objetivo.

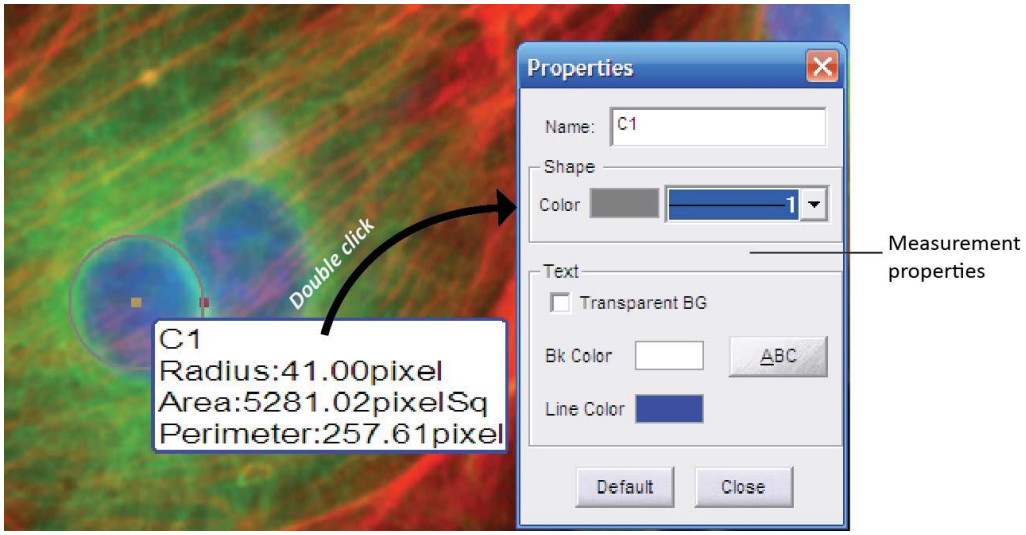
Lista de mediciones



Todas las mediciones son enumeradas en la Measurement List [Lista de mediciones]. El software permite exportar los datos de medición a un archivo TXT o Excel.

Medición

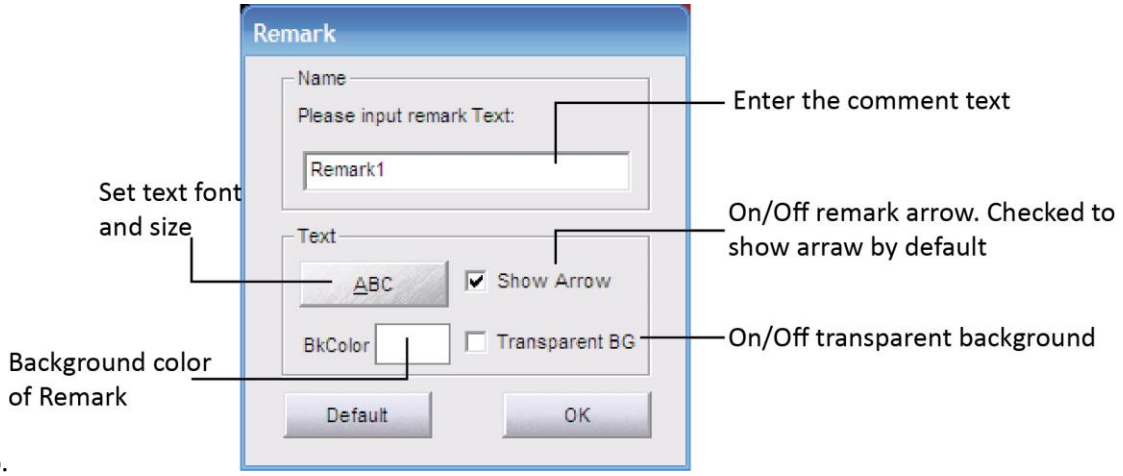
El software permite medir mediante líneas, paralelas, perpendiculares, rectángulos, círculos, polígonos, arcos y ángulos. La función Count (Conteo) permite contar manualmente los objetos. Además, la función Annotate (Comentario) permite añadir comentarios en las imágenes.



Haga doble clic sobre los datos de medición para visualizar la ventana de medición de la configuración. Permite modificar el nombre de los datos, el color, el grosor, el color de fondo y el tipo de caracter.

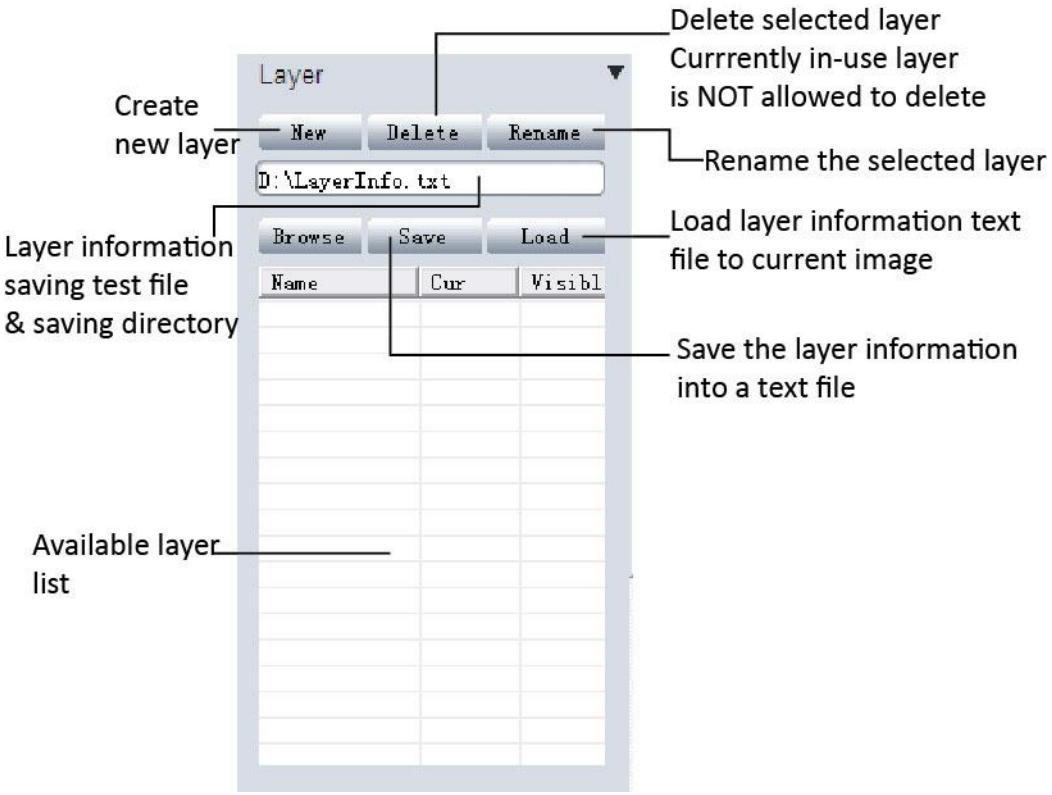
Comentario

Selecciona [Annotate] y haga clic en la zona de la imagen donde se quiere añadir un



comentario.

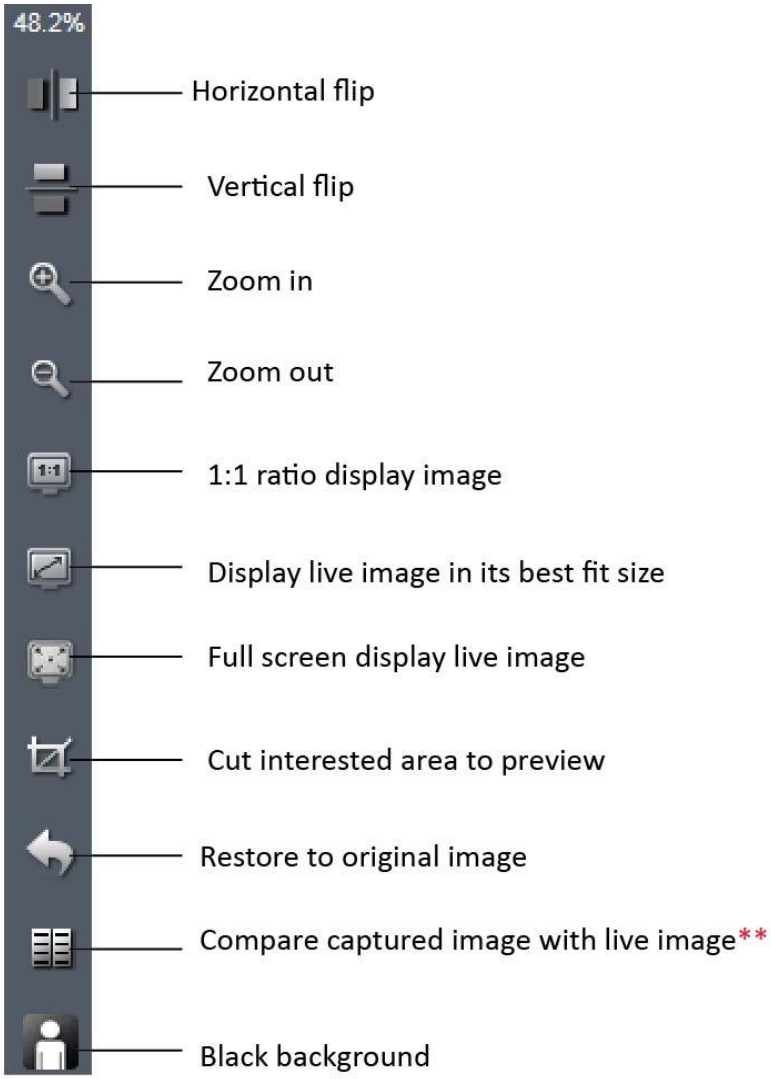
Niveles



Cuando es necesario hacer mediciones en bloques de las imágenes, algunas mediciones distintas podrían superponerse haciendo que la medición sea difícil. La función layer (capa) permite crear más niveles para realizar mediciones diferentes y hará que sea fácil añadir un gran número de mediciones en la imagen. Véase el Anexo 2 para obtener más detalles.

Funciones rápidas (imagen en vivo)

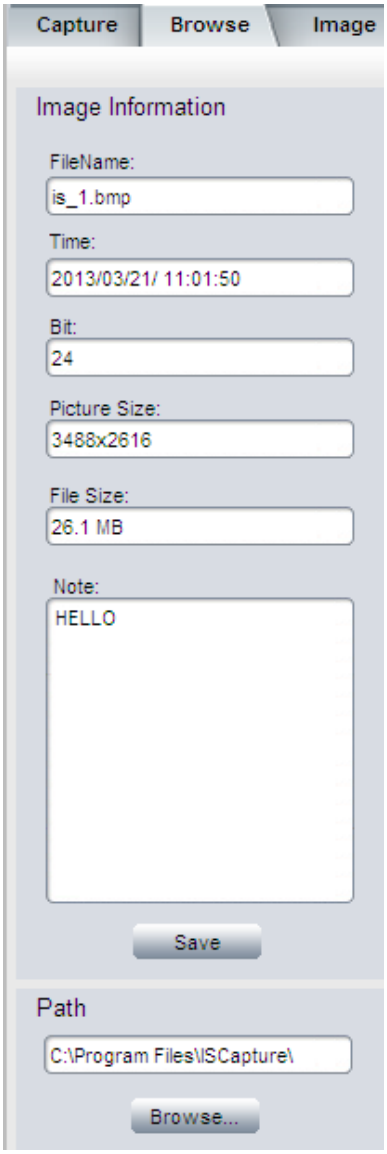
En el lado derecho de la ventana de la imagen en vivo, hay algunas funciones rápidas para procesar la imagen en vivo más rápidamente.



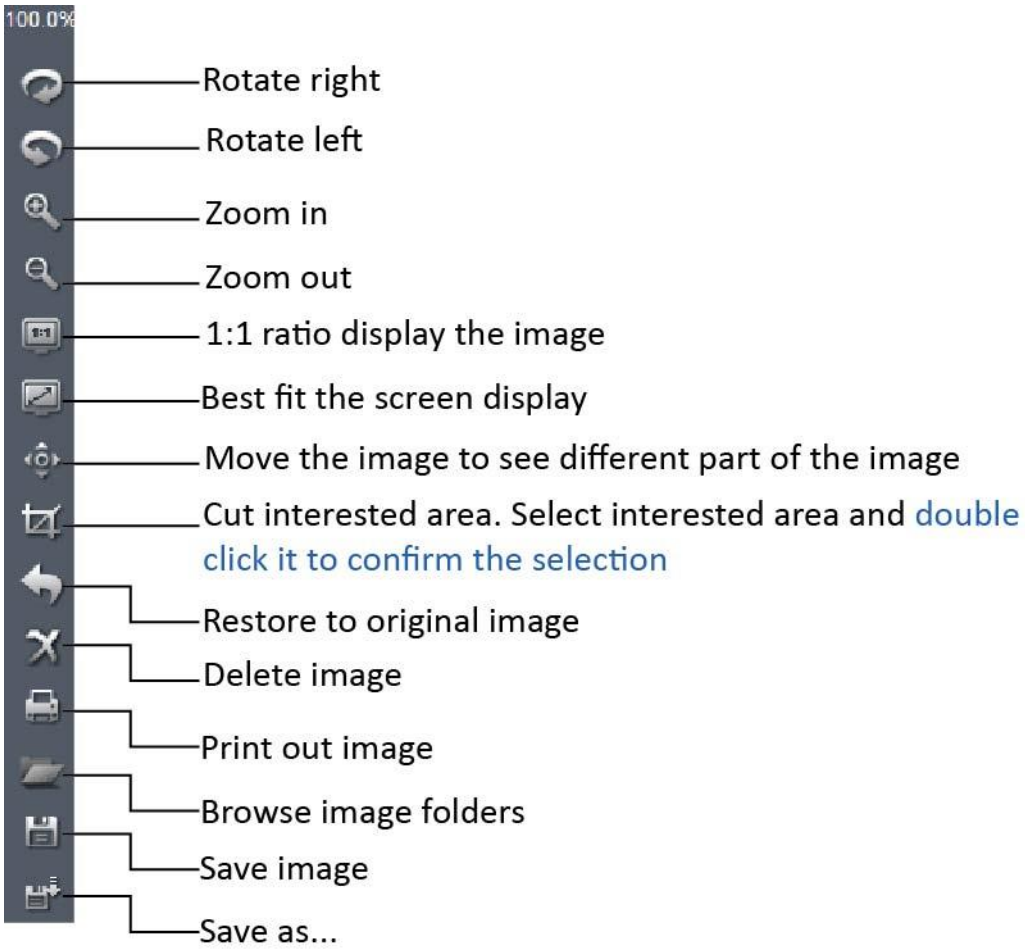
** Compare function: Live image will be displayed on the left side. Click on the taken image thumbnail to select it to compare with live images (Chosen compared image will be enhanced in gray-white frame).

Capítulo 4: gestión de la imagen

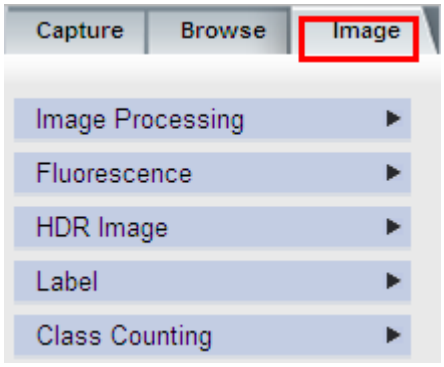
Visualice las imágenes en el panel [Browse], visualice el nombre del archivo del archivo de la imagen, el tiempo de captura, la profundidad del color (bit), la resolución y las dimensiones de la imagen. Esto también permite añadir comentarios en cada imagen. Cuando se visualiza la imagen siguiente, el software mostrará también el comentario.



El software proporciona algunas funciones rápidas en el lado derecho en modo ***Browse o Image.***

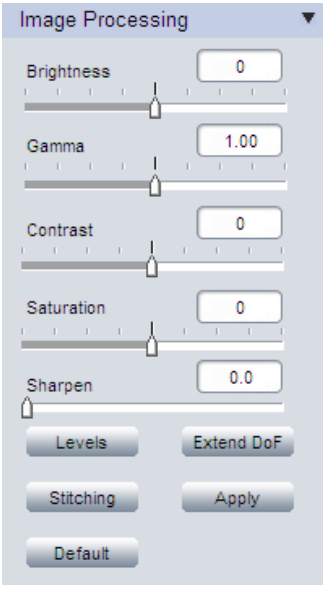


Capítulo 5: elaboración de la imagen



En esta sección el software prevé funciones avanzadas de procesamiento de la imagen y permite realizar mediciones sobre las imágenes tomadas.

Procesamiento de imágenes (Image processing)

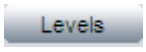


Proporciona funciones básicas de procesamiento de las imágenes tomadas y permite también funciones avanzadas como extended Depth of Focus (profundidad aumentada del foco) and image stitching (combinación de imágenes).

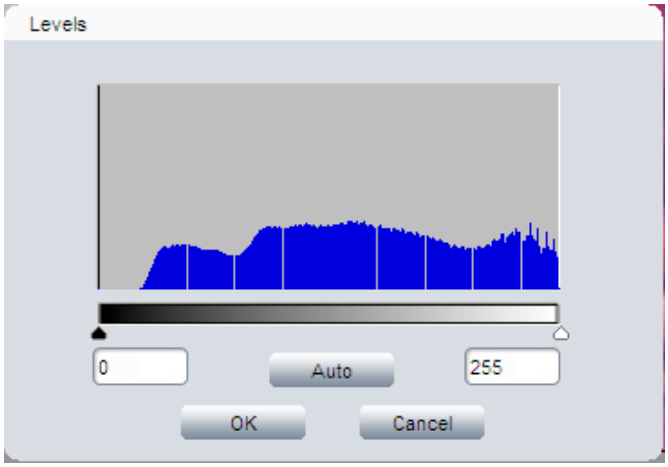
Brightness	Adjust captured image brightness. Default brightness = 0
Gamma	Adjust captured image gamma. Default gamma = 1.00
Contrast	Adjust contrast. Increase the contrast, the shadows become darker and the highlights brighter. Decrease the contrast, the highlights grow dim and the dark areas lighten up
Saturation	Adjust the color saturation. Fully-saturated colors are very bright, while low saturation are grayish.
Sharpen	Adjust the image sharpness. Sharpness is the contrast on the edges. Sharpening increases the bright and dark lines on edges.
Levels	Adjust image levels. Get more details in [Fluorescence]>>[Levels]
Extend DoF	Extend the Depth of Focus (DoF)
Stitching	Image stitching. Combine multiple images with overlapping fields of view to produce a segmented panorama or high-resolution image.
Default	Restore Brightness, Gamma, Saturation, Sharpen and levels back to the default value
Apply	Confirm to apply all the settings to the image.

Tras haber hecho clic en [Apply], todas las configuraciones se aplican a la imagen. NOTA IMPORTANTE: una vez que llevas a cabo esta elección, NO se puede volver a la imagen original.

Niveles

Pulse [Levels] 

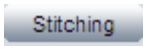
para obtener el histograma de la imagen. Permite ajustar los niveles de la imagen. La regulación de los niveles es la misma que la de la imagen en vivo. Más detalles en [Capture]-->> [Fluorescence].



Aumentar la profundidad del foco

Al aumentar la profundidad del foco se combinan varias imágenes para crear una en el foco. Se utiliza para aumentar la profundidad del foco que aparece en una imagen. Véase el Anexo 3: Funciones avanzadas, para obtener más detalles.

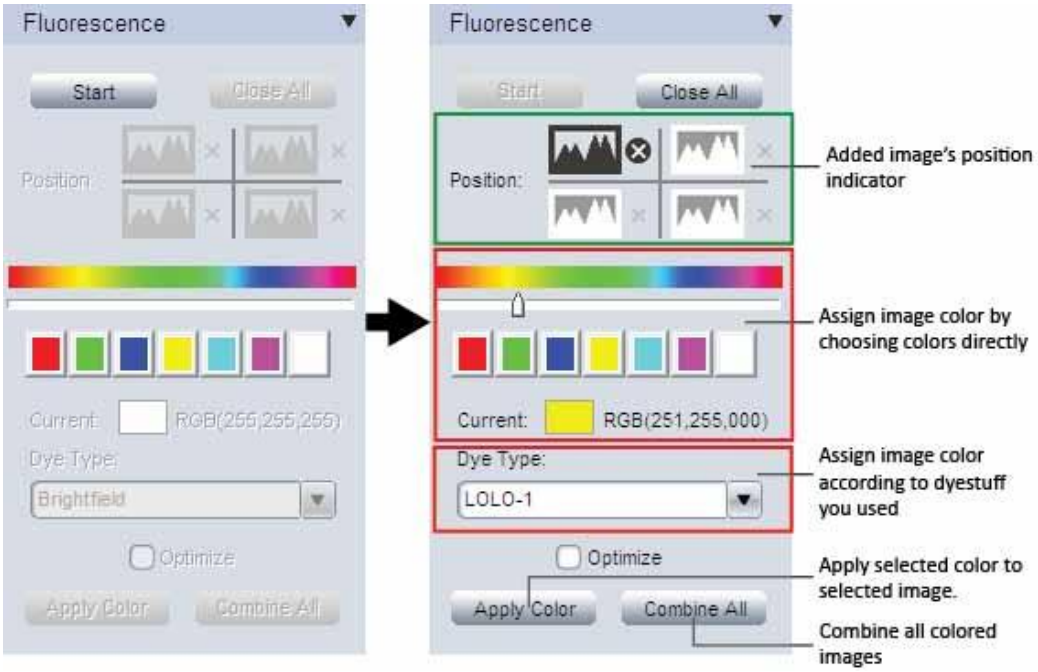
Combinación de imágenes

Haga clic en 

para obtener la configuración para la combinación de las imágenes.

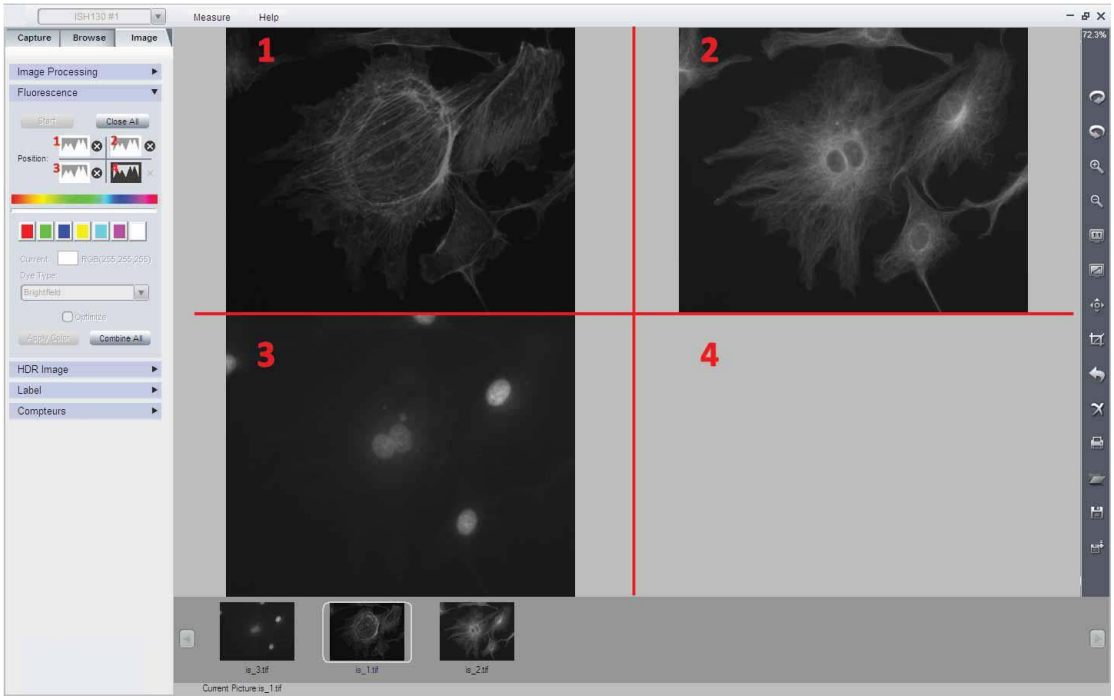
Dicha función permite combinar más imágenes con campos de vista que se superponen y producir una imagen más amplia (panorama) con alta resolución. Véase el Anexo 3: Funciones avanzadas, para obtener más detalles.

Fluorescencia

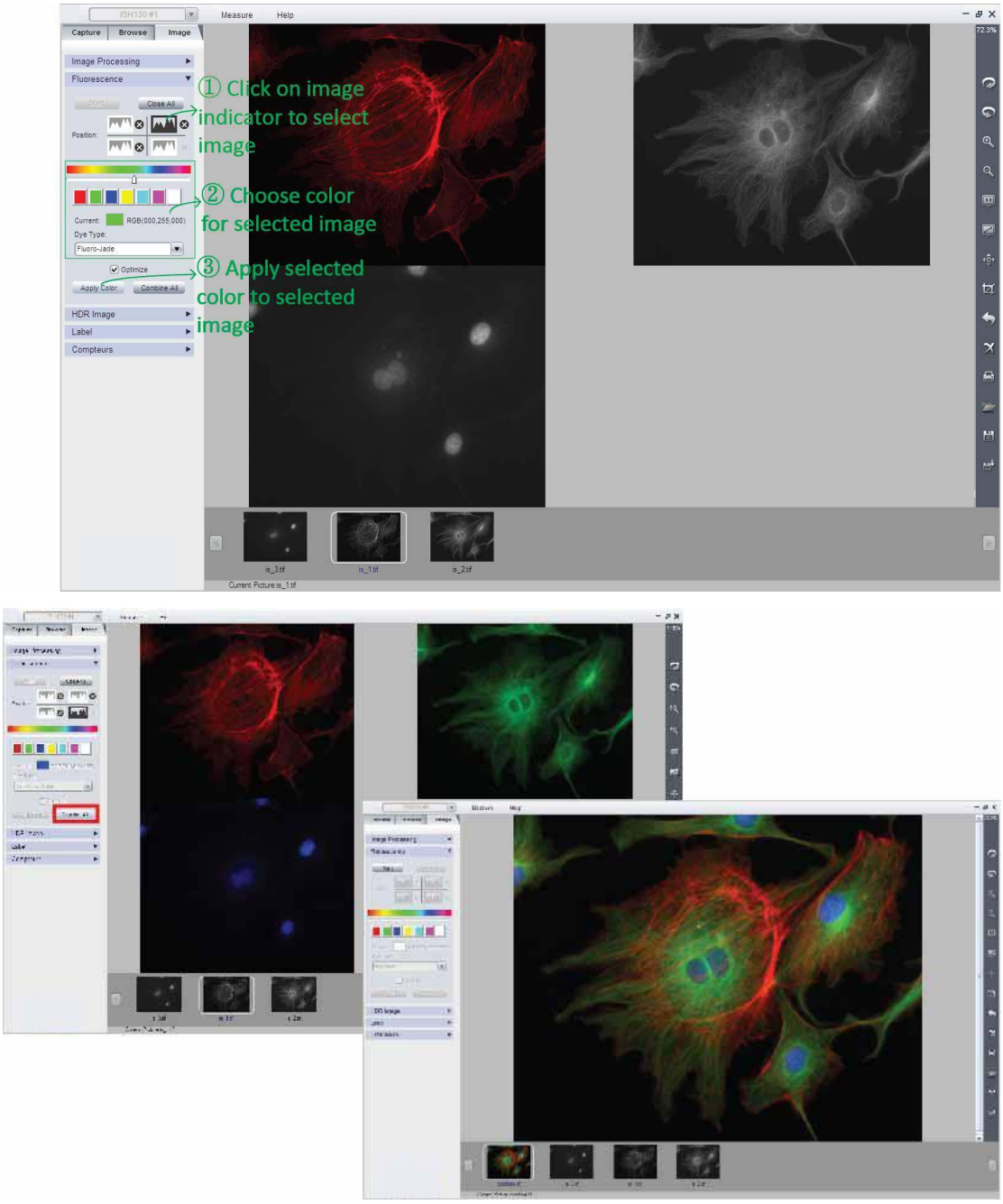


Esta función se utiliza para asignar colores distintos con imágenes con fluorescencia y combinarlas en una única imagen.

Paso 1: Abra en el software las imágenes que deben combinarse, luego haga clic en [Start] para iniciar la combinación.
Paso 2: Haga clic en las miniaturas de las imágenes para añadir las que correspondan. El indicador de posición de la imagen muestra la posición de las imágenes añadidas. Pueden añadirse para la combinación en fluorescecia, un máximo de 4 imágenes.



Paso 3: Haga clic en un indicador de la imagen para iniciar y aplicar el color de la misma.
① Haga clic sobre un indicador de la imagen para seleccionarla (aquella seleccionada aparecerá de color oscuro, las no seleccionadas aparecerán en gris claro).
② Asigne el color de la imagen seleccionada.
Existen dos formas para la asignación del color:
Hacer clic en el color preferido o mediante el cursor para elegirlo.
b. Asigne el color según el colorante de fluorescencia desde el menú desplegable [Dye Type].
③ Haga clic en el botón Apply color (Aplicar color) para añadir el color seleccionado a la imagen.
Paso 4: Haga clic en [Combine All] para combinar todas las imágenes coloreadas.

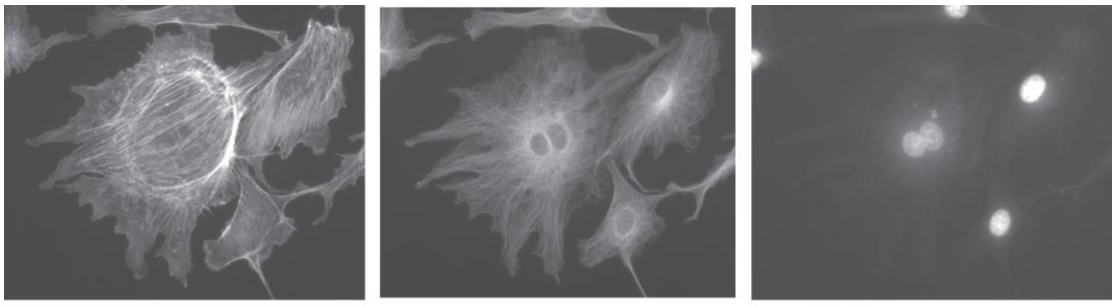


Se recomienda Optimize seleccionar la casilla de control Optimize durante la fase de combinar. Optimizará el fondo de la imagen para obtener una mejor imagen. Si dicha función no es seleccionada, la imagen que se crea contendrá toda la información de la original.

Tras haber creado la imagen en fluorescencia, la función [Sharp] dentro de la pestaña [Image Processing] puede ayudar a obtener imágenes más nítidas y a ver más detalles.

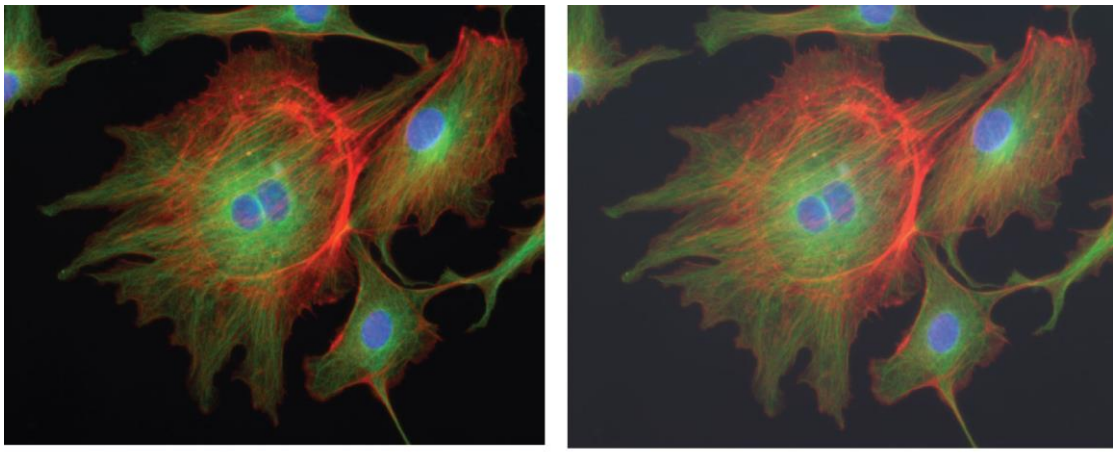
Si añades una imagen equivocada o un color incorrecto a la imagen seleccionada, basta con hacer clic en la cruz pequeña detrás de cada indicador para cancelarla. Si quiere cancelar la actual combinación, basta con hacer clic sobre [Close All] para cancelar la combinación.

Imágenes originales:



Original images

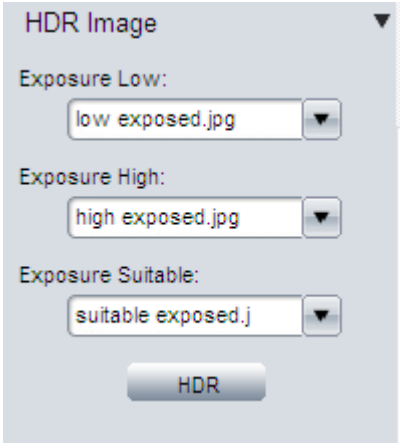
Imagen combinada:



Combined image with optimization

Combined image without optimization

Imagen HDR



High Dynamic Range (HDR) se usa para obtener un rango dinámico más amplio en la imagen.

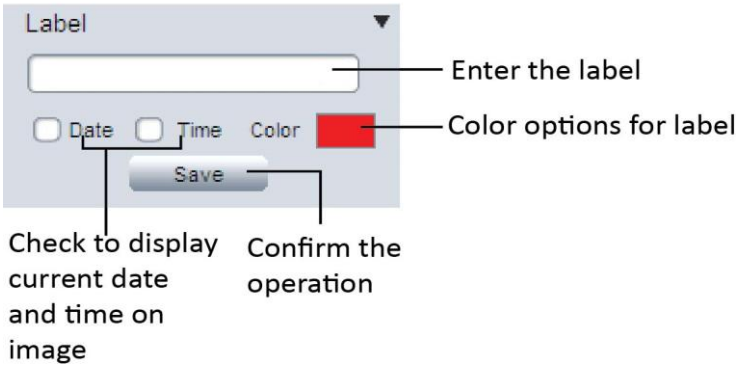
- Tome fotos de la misma escena con tiempos de exposición diferentes y cárguelas en el software.
- En el menú desplegable, seleccione las imágenes

correspondientes para [Exposure Low], (baja exposición) [Exposure High] (alta exposición) y [Exposure Suitable] (exposición adecuada).

- Pulsar [HDR] para combinar las imágenes con distintas exposiciones en una única imagen que se le llamará "hdr_image".

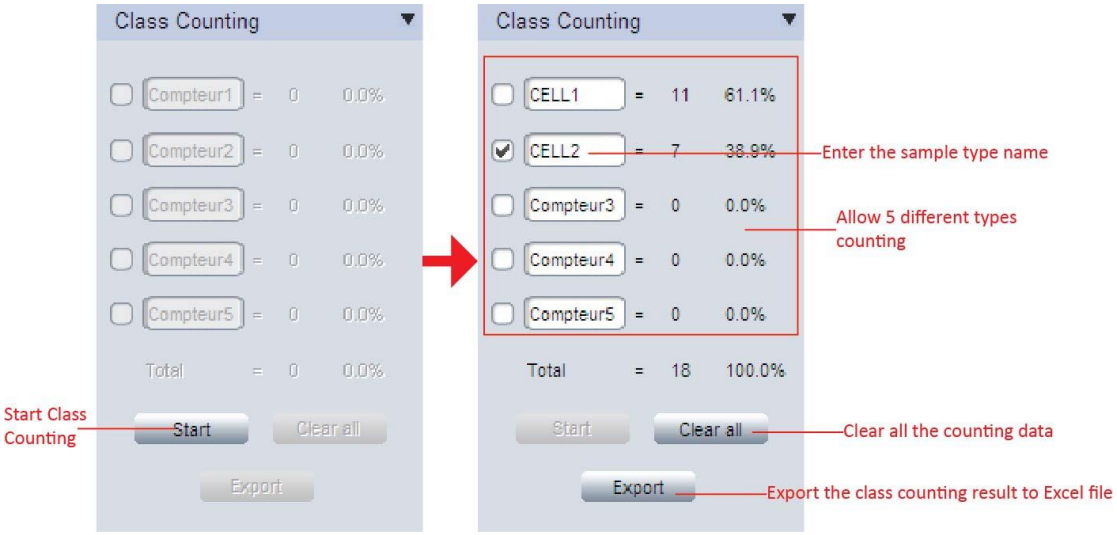
Si las imágenes tomadas con distintas exposiciones no se cargan en el software, la función rápida  en el lado derecho de la ventana del software permite acceder a cualquier imagen fácilmente.

Etiquetas

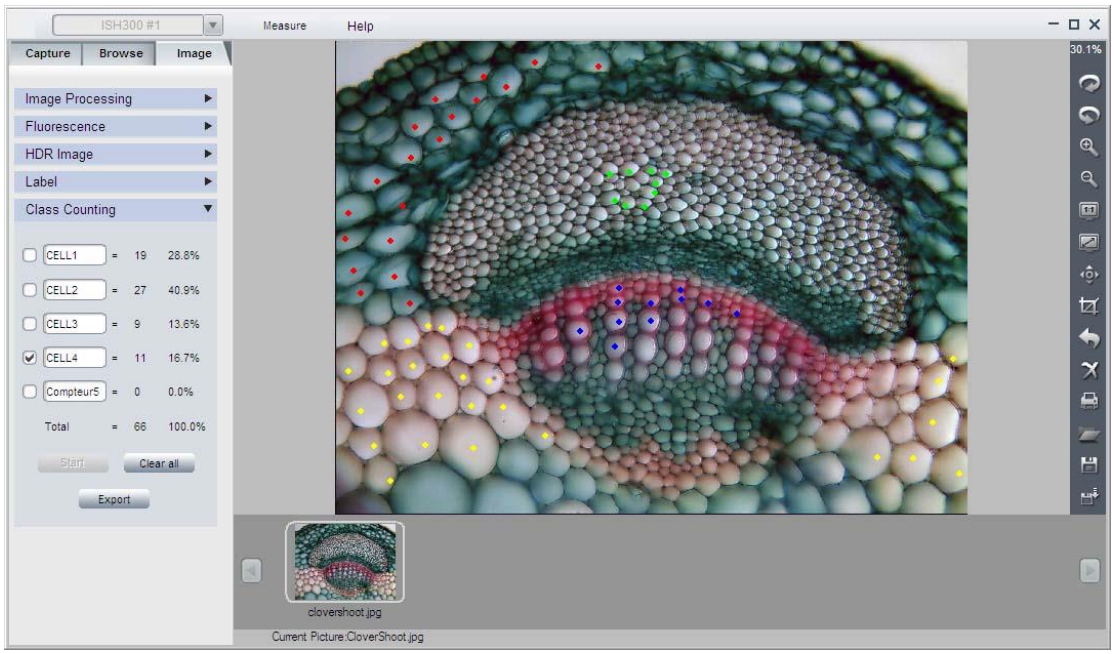


Añade un texto y la hora y la fecha en la imagen. Haga clic en [Save] para guardar las etiquetas.

Conteo



La función de conteo permite realizar 5 tipos distintos de conteos de forma manual. Cada tipo se indicará con distintos puntos de color.

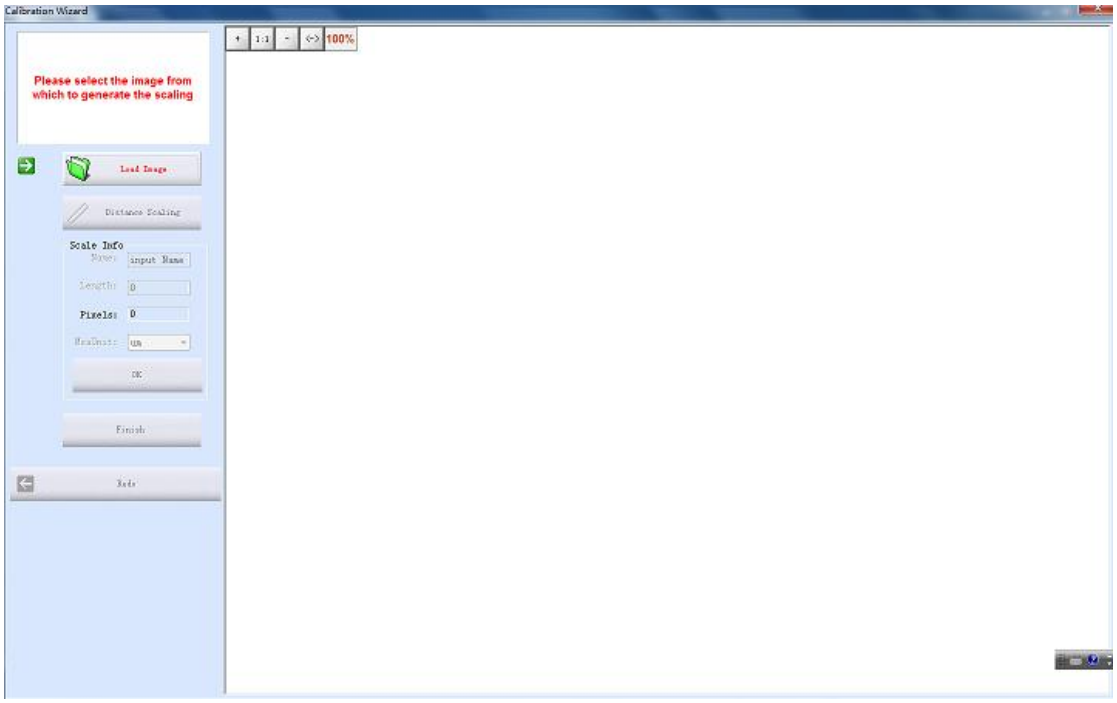


Anexo 1: cómo crear un archivo de calibración

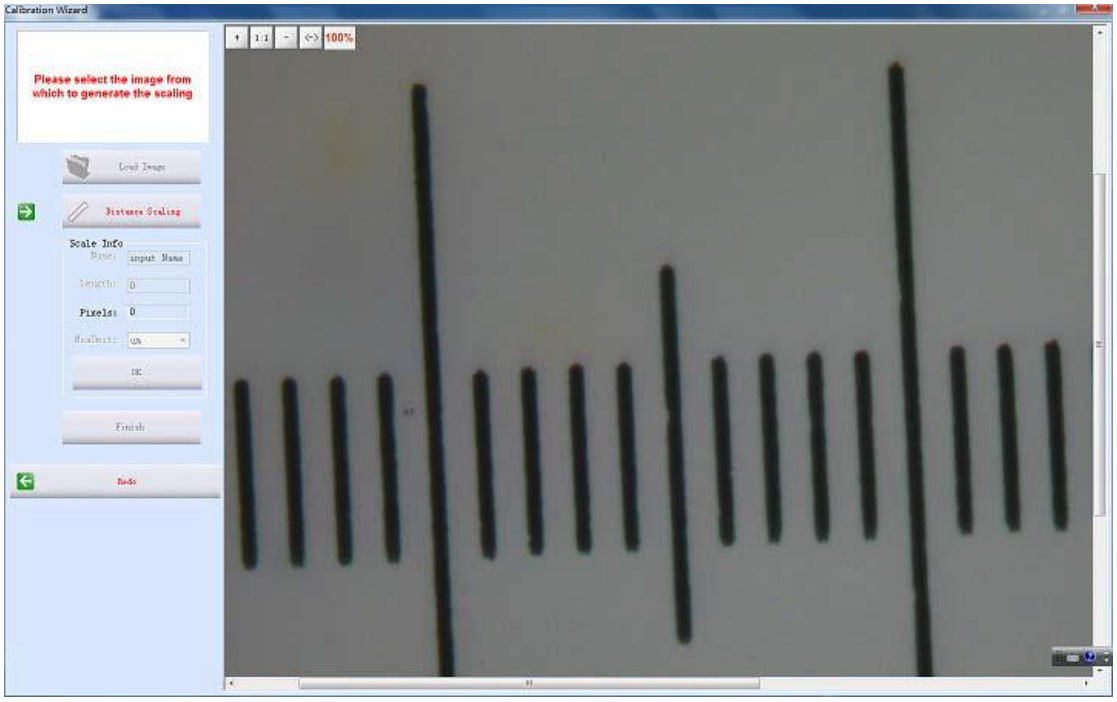
1. Capture las imágenes del portaobjetos de calibración con todos los objetivos con los que se trabajará (si se utiliza una lente de reducción, es necesario capturar la imagen del portaobjetos de calibración con dicha lente de reducción introducida).

Si sólo se usa un objetivo y una resolución en la aplicación, basta con una única foto del portaobjetos de calibración. La imagen del portaobjetos de calibración debe tomarse exactamente con el mismo objetivo y las configuraciones del microscopio que luego se utilizarán para observar la muestra del portaobjetos.

2. Haga clic en para comenzar a crear el archivo de calibración.

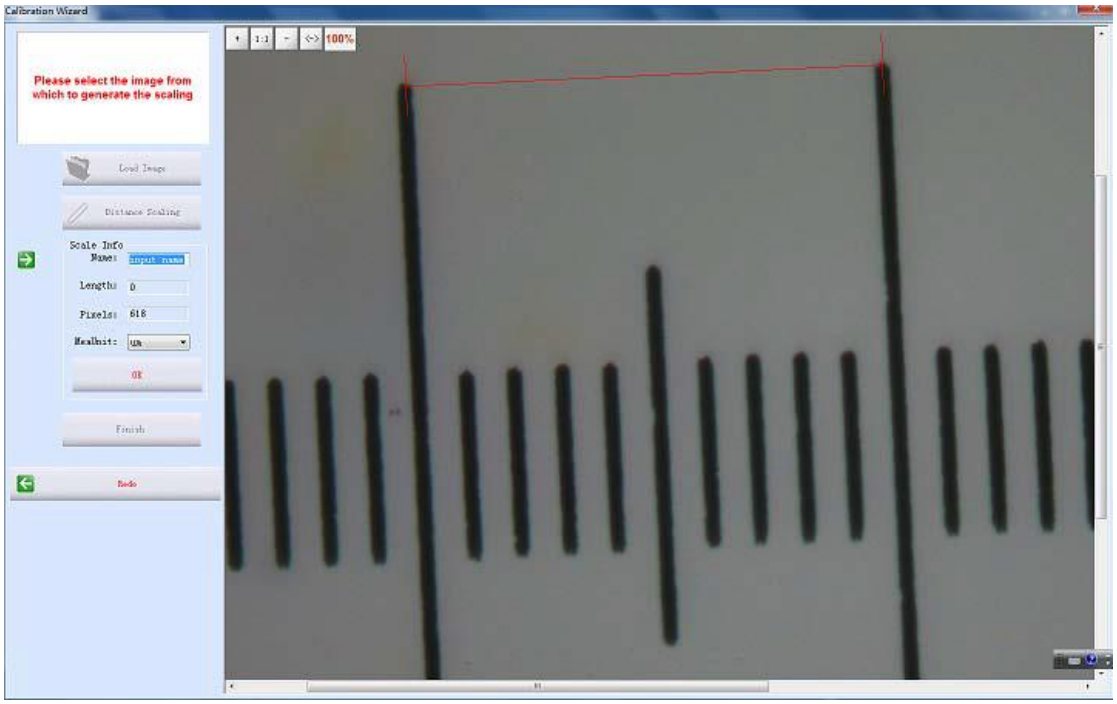


8. Haga clic en [Load Image] para cargar la foto del portaobjetos de calibración tomada en el paso 1.



9. Haga clic en [Distance scaling], mueva el cursor sobre la imagen del portaobjetos y dibuje una línea para tomar la longitud de referencia.

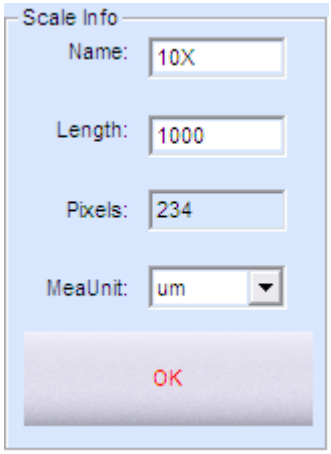
Utilizar una distancia más larga como longitud de referencia proporcionará resultados de medición más precisos. Por ejemplo, con 10 unidades de escala como longitud de referencia se obtendrán resultados más precisos respecto al uso de una única unidad de escala.



5. Introduzca el nombre del archivo de calibración y la longitud de la línea que se ha creado.

Si se precisa de más de un archivo de calibración, se recomienda utilizar como nombre del archivo, la referencia "objetivo + lente de reducción (si se usa) + resolución". Esto puede ayudar a no elegir un archivo de calibración erróneo.

Cuando se introduce digitalmente la longitud, se ruega prestar mucha atención a la unidad de la escala de calibración del portaobjetos y a la unidad de medida utilizada. Por ejemplo, la unidad de escala de calibración es 0.1 mm; la unidad de medida seleccionada es µm (micrón) y la longitud de referencia que se ha creado es de 10 unidades de escala; a este punto, la longitud debe ser de 10 x 0,1mm x 1000 = 1000 µm.

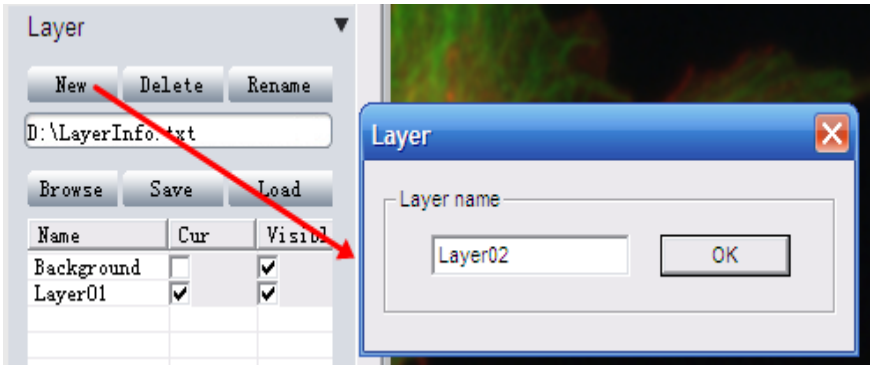


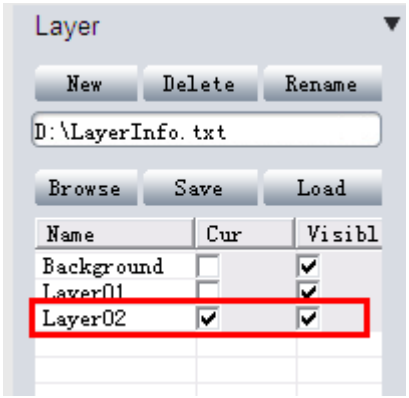
10. Haga clic en [OK] para confirmar la calibración. El nuevo archivo de calibración, cuyo nombre es "10X", por ejemplo, se crea en la Calibrate Table [Tabla de calibración].

Anexo 2: Usar los niveles para medir en bloque

Cuando es necesario hacer mediciones por bloques en las imágenes, algunas mediciones distintas podrían sobreponerse haciendo que la medición sea difícil. La función layer (capa) permite crear más niveles para realizar mediciones diferentes y hará que sea fácil añadir un gran número de mediciones en la imagen.
Si ya se han realizado mediciones en la imagen, la función **[Measure]-->[Layer]** creará automáticamente el "background" (fondo) y el "Livello01" (nivel 01) para la imagen actual.

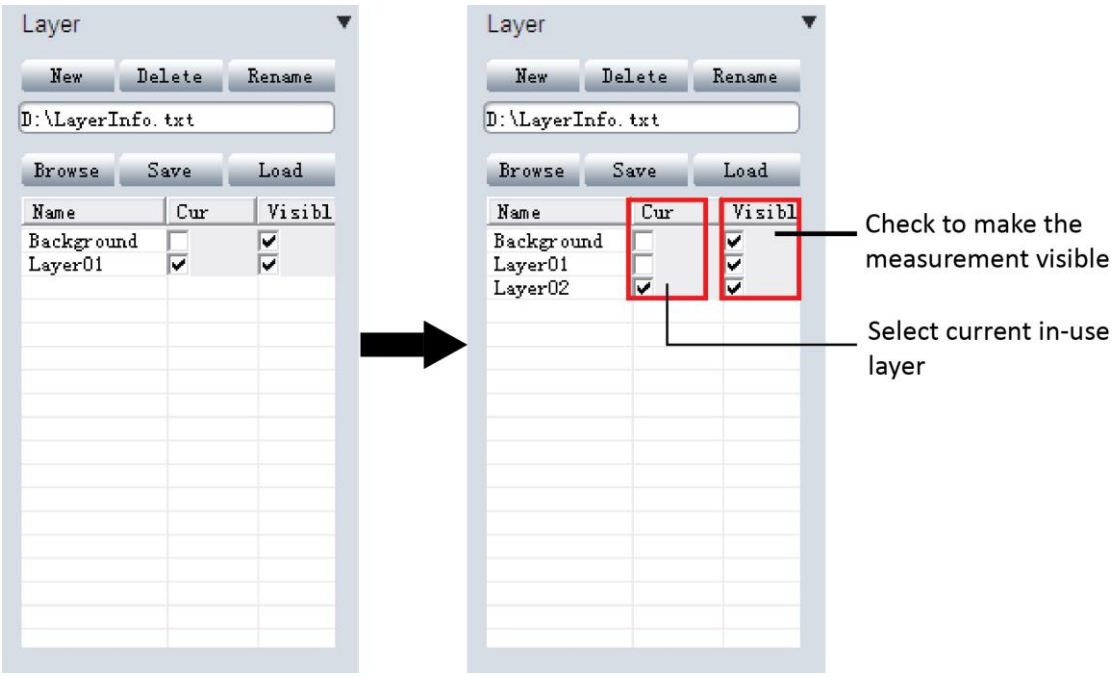
Haga clic en [New] para crear un nivel nuevo. Es posible renombrar el nombre del nivel. Por defecto, se usan los nombres ""Layer02", "Layer03", etc.

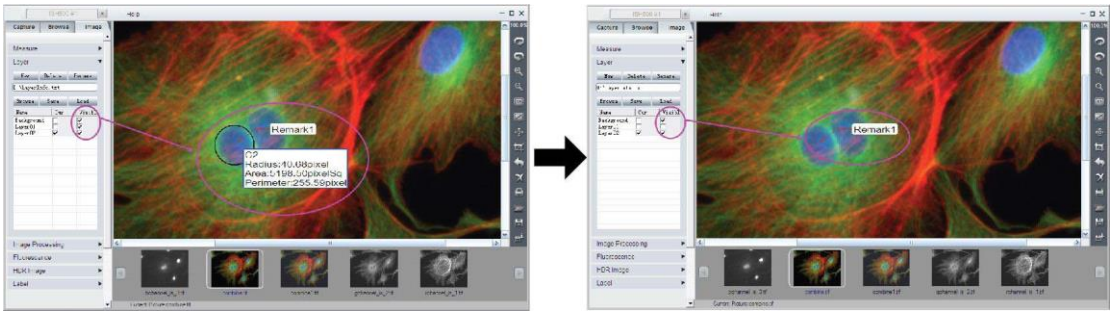




Ahora, se pueden aplicar una serie de mediciones en los distintos niveles. Puede seleccionar cual es el nivel que se desea observar.

Si se selecciona [Cur] significa que el nivel correspondiente aparece de inmediato. Seleccione un [Cur] distinto para saltar entre los distintos niveles. En la columna [Visible], con la casilla de control seleccionada, significa que todas las mediciones en los niveles correspondientes se visualizarán también en el nivel actual.
Deseleccione la casilla de control, y la medición correspondiente será invisible en el nivel actual.



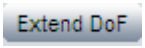


- Haga clic en [Browse] para elegir la carpeta de guardado del archivo e introduce el nombre del archivo. Luego, haga clic en [Save] para guardar la información del nivel actual en el archivo de texto. La información del nivel se guarda por defecto como "LayerInfo.txt".
- Haga clic en [Browse] para encontrar el archivo de información de una capa. Haga clic en [Load] para cargar la información del nivel en la imagen actual.

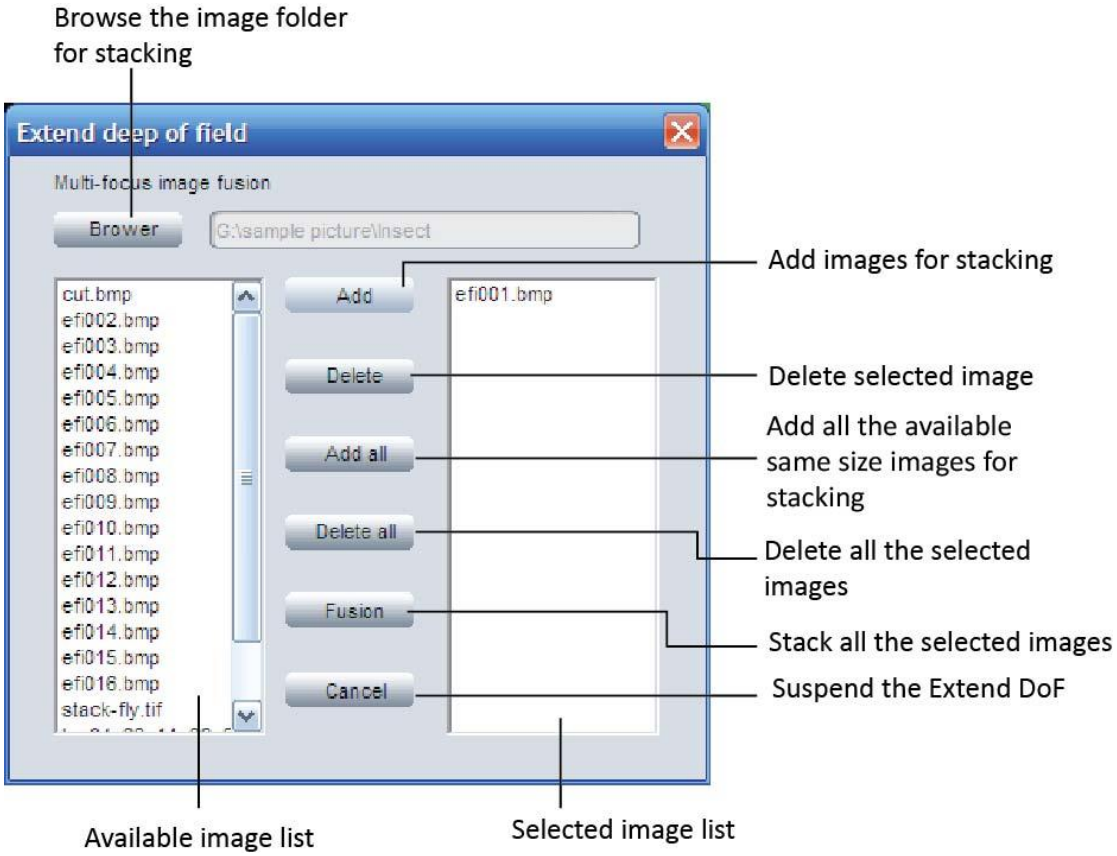
Anexo 3: funciones avanzadas

Aumento de la profundidad del foco

Al aumentar la profundidad del foco se combinan más imágenes para crear un atractivo en el foco. Se utiliza para aumentar la profundidad del campo que aparece en una imagen.

Pulse Extend DoF 

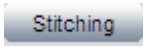
para visualizar la ventana de diálogo que se muestra a continuación. Seleccione las imágenes correspondientes y aplique la función.



- Observe la carpeta donde se encuentran las imágenes que se quiere combinar.
- Todas las imágenes contenidas en la carpeta se enumeran en el lado izquierdo. Al hacer clic en una imagen, ésta se destacará en azul.
- Haga clic en [Add] para añadir la imagen destacada en el lado derecho (éstas serán las imágenes originales que se utilizarán en la combinación).
- La tecla Add all permite añadir todas las imágenes con las mismas dimensiones en el lado izquierdo y las imágenes originales en el lado derecho con un sólo clic.
- Haga clic en [Fusion] para montar todas las fuentes de imágenes seleccionadas y obtener una imagen con una extensa profundidad de campo.

Cuando se selecciona una imagen errónea como fuente para la combinación, basta con hacer clic en ella y luego en [Delete] para eliminarla. La función [Delete all] eliminará todas las imágenes seleccionadas.

Combinación de imágenes

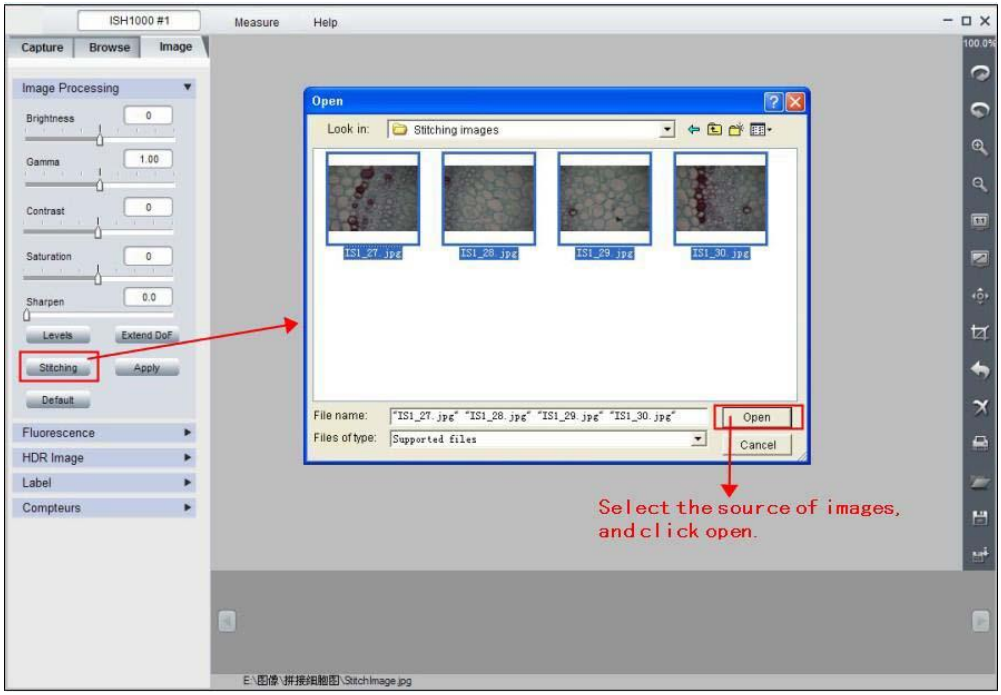
Haga clic en 

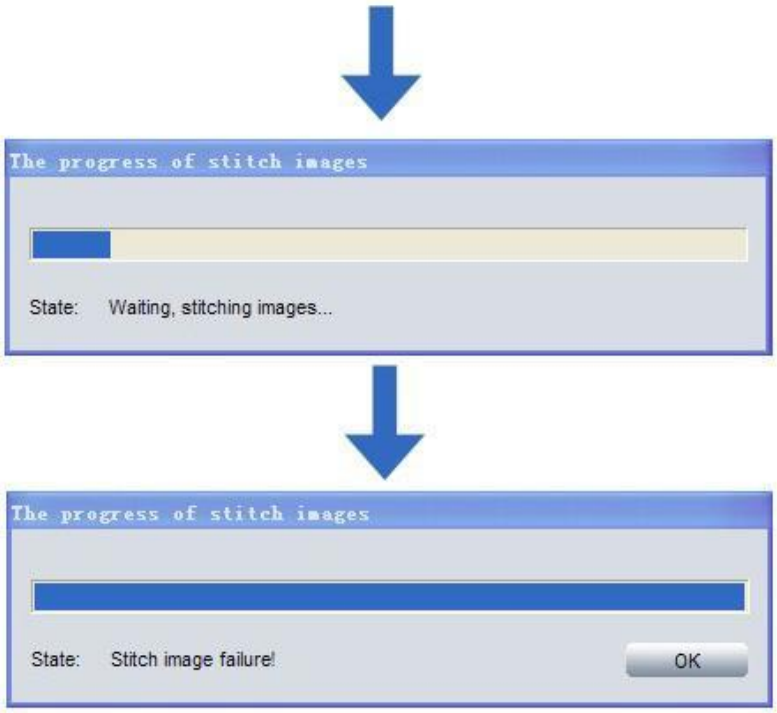
para visualizar la configuración para la combinación de las imágenes. Dicha función combina varias imágenes con campos de vista superpuestos para crear una imagen panorámica más larga o con una alta resolución.

Haga clic en [Open] para visualizar las imágenes originales que se desean combinar. Seleccione todas las imágenes originales y ábralas.

2) Haga clic en [Stitching] para iniciar la combinación de todas las imágenes originales.

3) Haga clic en [Save] para guardar la imagen combinada en el mismo directorio de las imágenes originales con su fecha y hora.





Si la fuente de la imagen no respeta los requisitos, se visualizará un mensaje de error en la operación de combinación.

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