

DV-130

Digital Camera(USB2.0)



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Technical specification

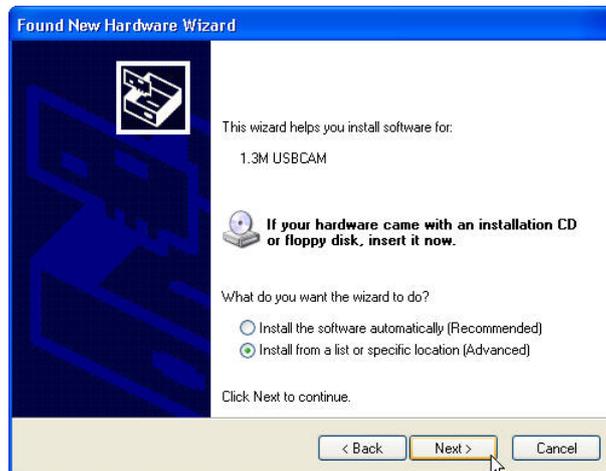
- ▲ 1/3" CMOS sensor
- ▲ 1.3 Mega pixel. Maximum real-time dynamic resolution: 1280x1024
- ▲ One key auto or manual white balance
- ▲ USB2.0 output
- ▲ System requirement: Windows2000 SP4 , Windows XP (SP2 or above) , Windows Vista, Windows 7
- ▲ USB cable, drive CD.
- ▲ Standard C-mount connection. Work with all brands microscope with C-mount adapter.

Setup instructions

1. Install the digital camera with C-mount adapter on the trinocular tube.
2. Insert the Driver CD into CDROM
3. Connect the camera and computer USB 2.0 port with the USB cable, computer will show a message.
"Found New Hardware"



"Found New Hardware Wizard" will show up, select "Install from a list or specific location (Advanced)" item, click "Next"



Click “Browse” and find CD-ROM drive (e.g. Drive G),select folder “G:\Driver”,Click “Next”



If following message shows up, click “Continue Anyway”.



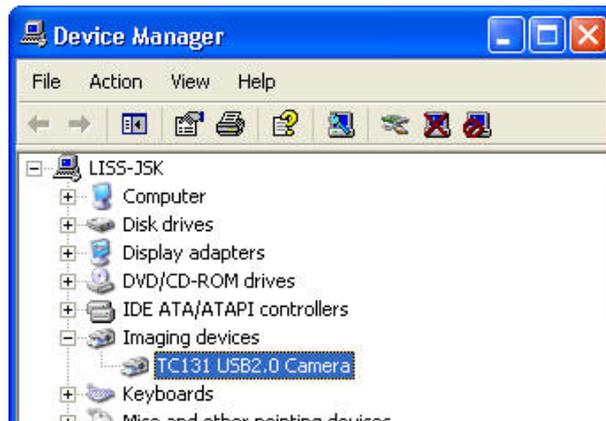
Click “Finish”, when the wizard has finished installing the software.



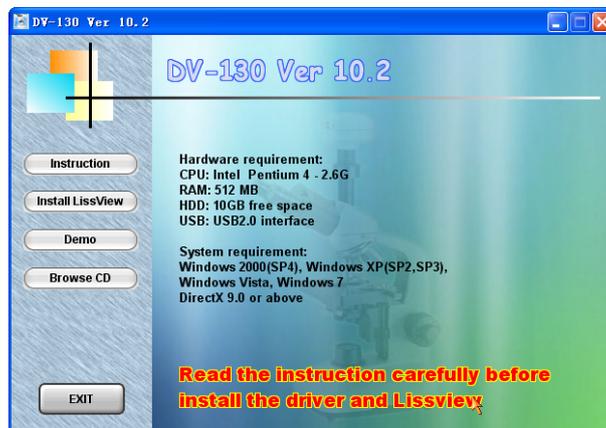
System will show following message.



To check driver status, open "Device Manager", you will see "TC131 USB2.0 Camera" under the "Imaging devices".



4. Install LissView software from autorun menu



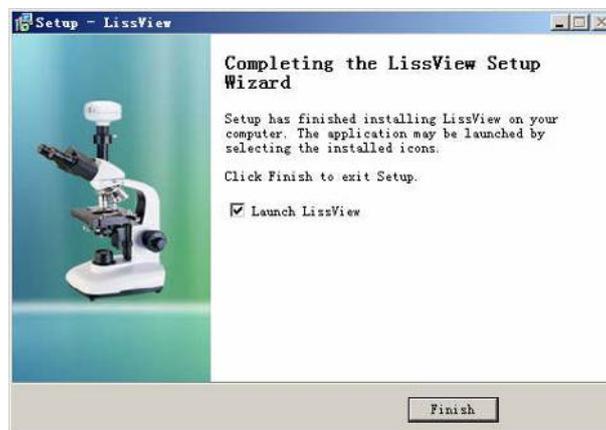
If following message shows up, click "Next"



Click “Next”



Click “Finish” to complete the lissView setup wizard.



DV-130 driver and software install completed.

Basic operation

1. Focus the microscope until you can observe clear image in the eyepieces.
If the microscope head has switch function to send 100% light to eyepiece or to trinocular tube, then it needs to switch 100% light to trinocular tube.
2. Run Lissview to preview microscope image.

Lissview user`s instruction

Chapter 1: System requirement

1. Operation system requirement

Lissview works under Windows 2000/XP/Vista/7, and DirectX 9.0 or above

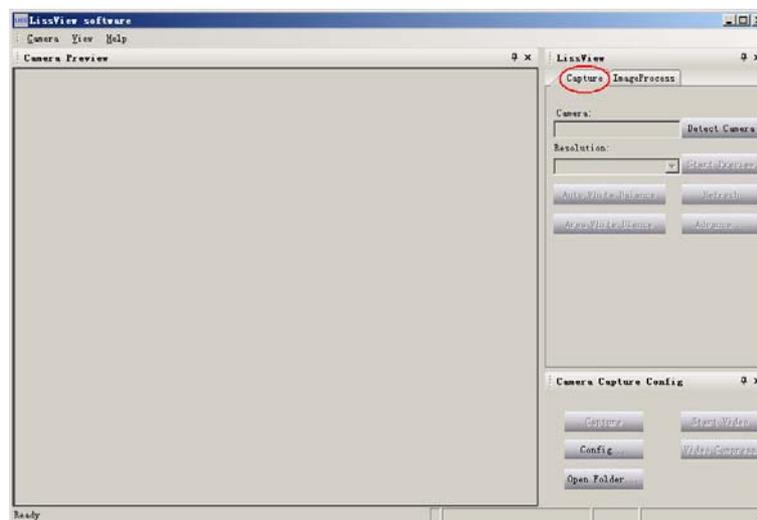
2. Hardware requirement

Please make sure the computer equipped with USB2.0 interface and installed correct driver

Chapter 2: Camera preview and capture

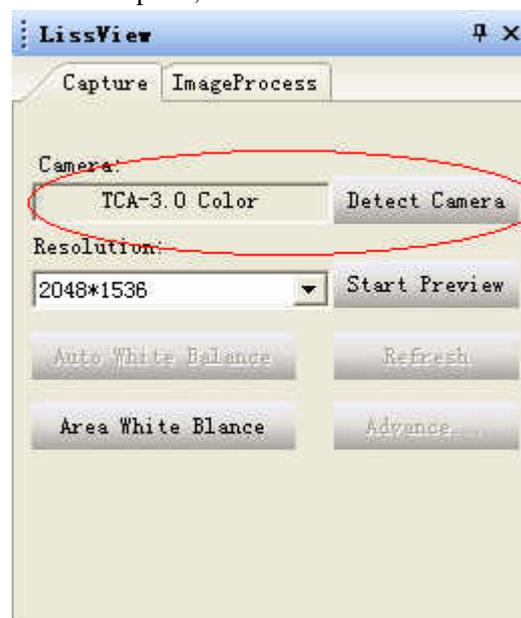
1. Camera operation

1) Click the “capture” panel which is on the top right of the window, as following shows:

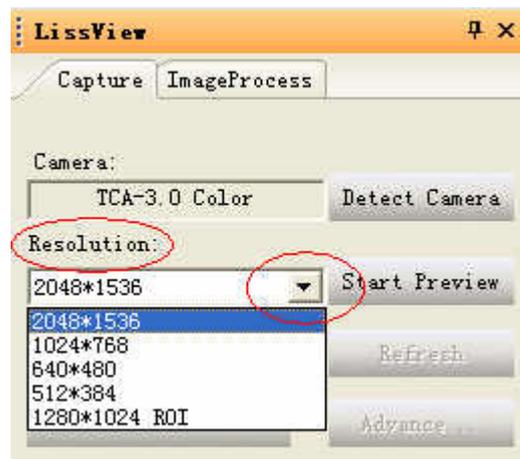


2) Select the camera device

When camera connects with the computer, choose the camera device



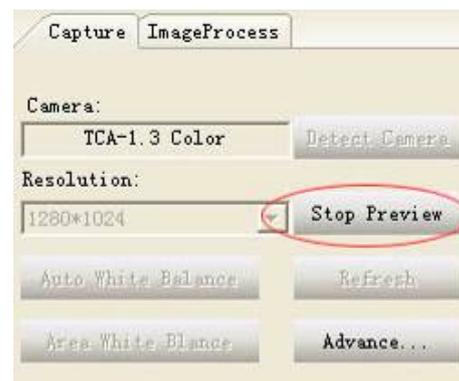
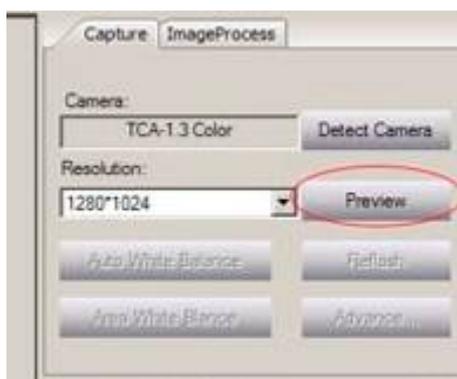
3) Select the image resolution



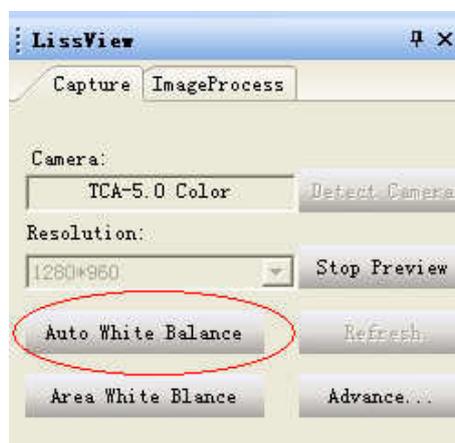
4) Preview image

Click the "Preview" button, the real time image will display on the main window.

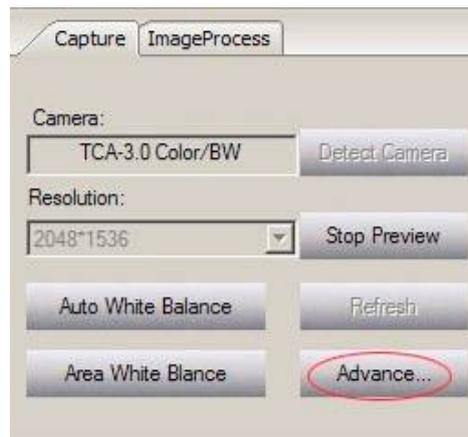
Click again "Stop Preview" to stop image preview



Click "Auto White Balance" and "Area White Balance" to automatically adjust the color value of red and blue.



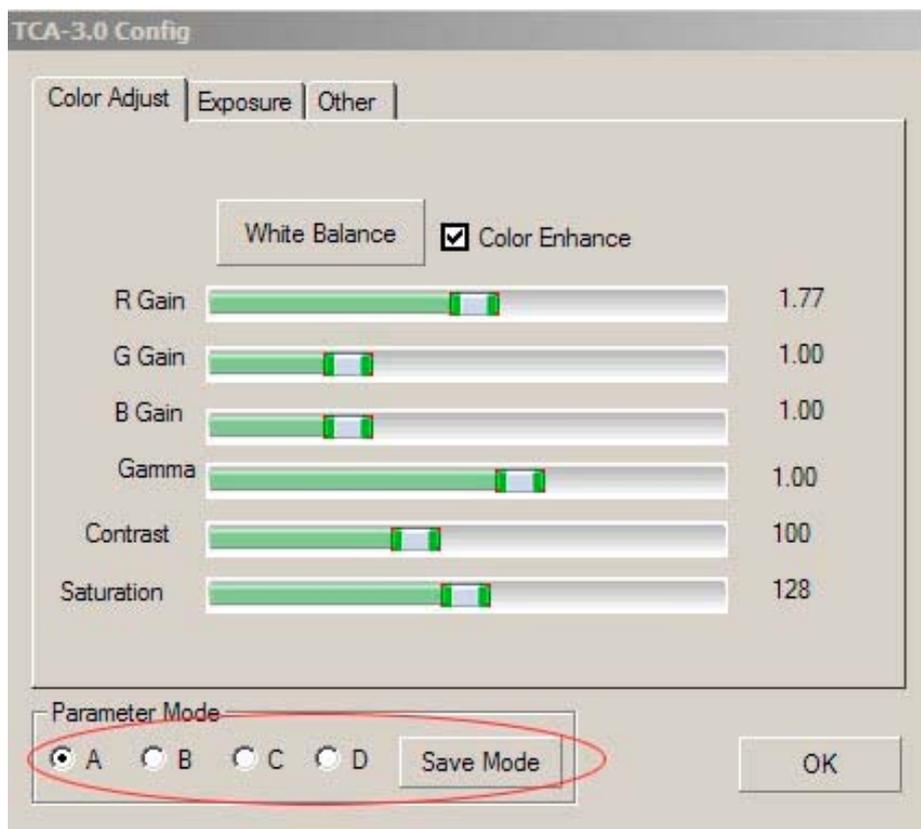
Click “Advance” to adjust image property



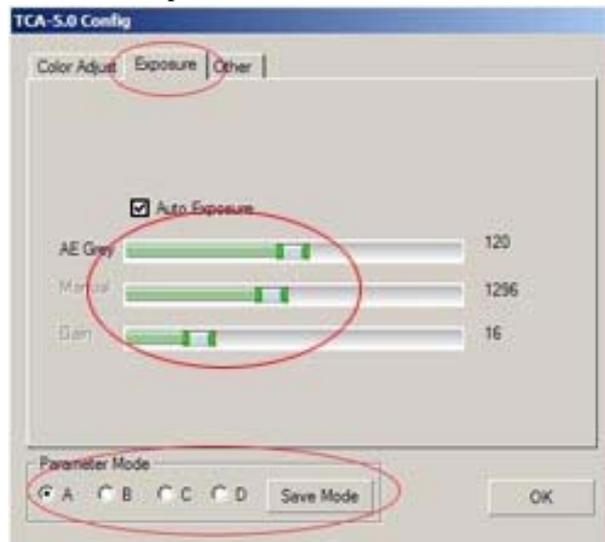
In “color adjustment” panel, adjust color (R/G/B), Gamma, Contrast and saturation.

Parameter Mode:

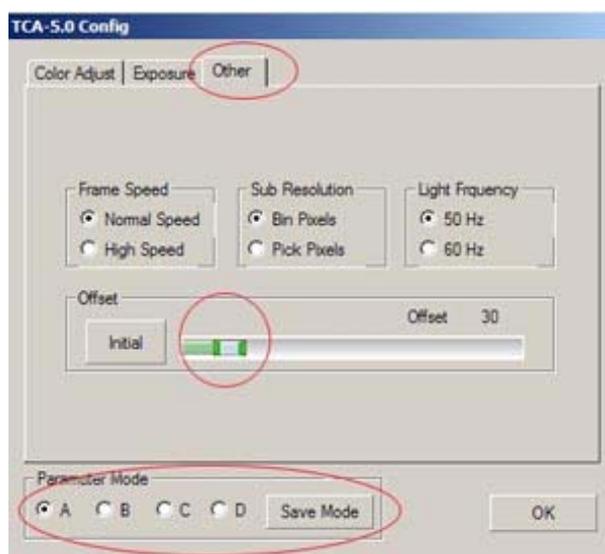
It can save up to four different settings, just select “A,B,C,D”, then click “save”.



In “Exposure” panel, adjust exposure time and grey target value. Default setting is auto. If you want to change the value, uncheck “Auto exposure” first.



In “Other” panel, adjust “Frame Speed”, “Sub Resolution”, “Light Frequency” and “Offset”



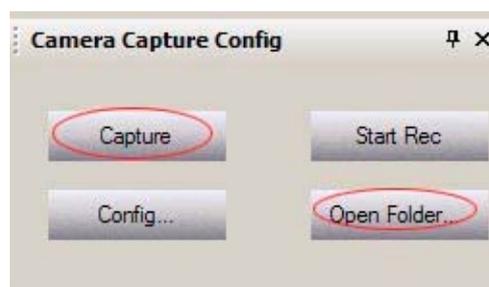
2. Capture image and video

1) Capture image

Click “capture” to capture image

The captured image will show in the “Capture Picture View” panel below

Click “Open Folder”, to open the save folder and locate the captured image file.



Click “Config...” to change the captured file setting.

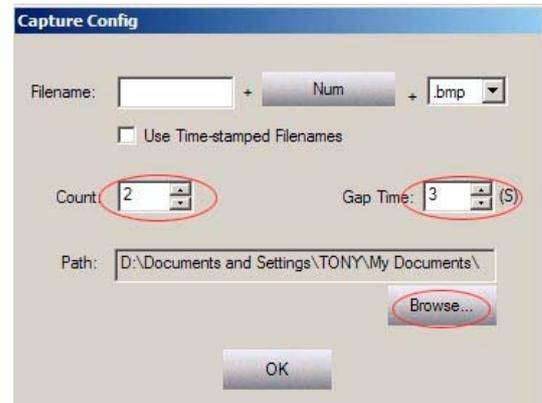
Change file name, the file name is auto change according to number add-on.

Change image file format: jpg, bmp, raw.

Click ”Count” to setup how many images to capture automatically

Click “Gap time” to setup the interval of image auto capture

Click “Browse” to setup the folder to save the image



2) Record video

Click “Start Video” to record video. Click again “Stop Video” to stop recording and save the video file.

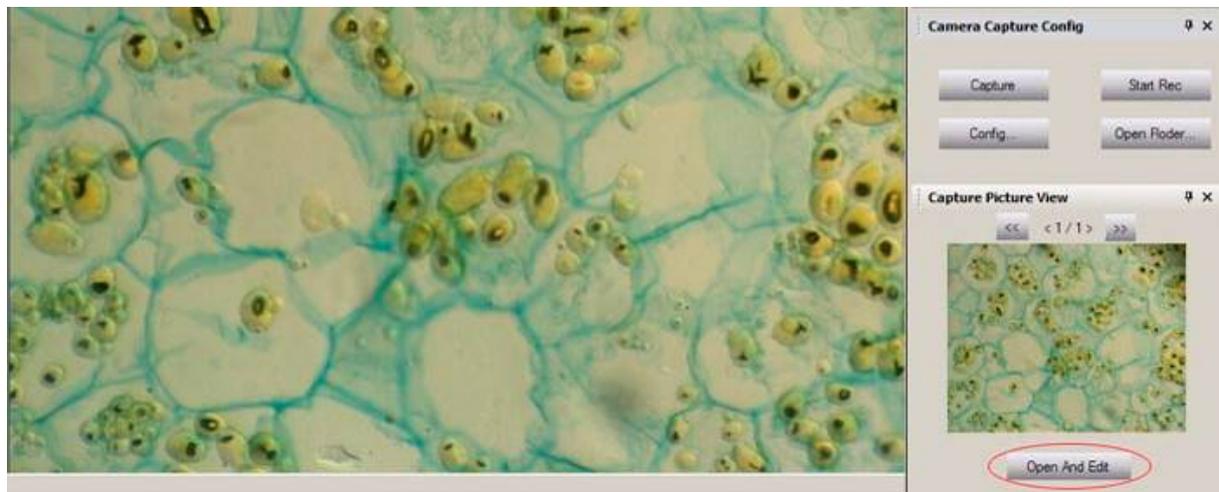
To play the recorded video, click “Open Folder” and double click the file



3) Fast view function

Choose forward (>>) and backward (<<) to preview captured image.

Click “Open And Edit”, current preview captured image will show in edit mode.



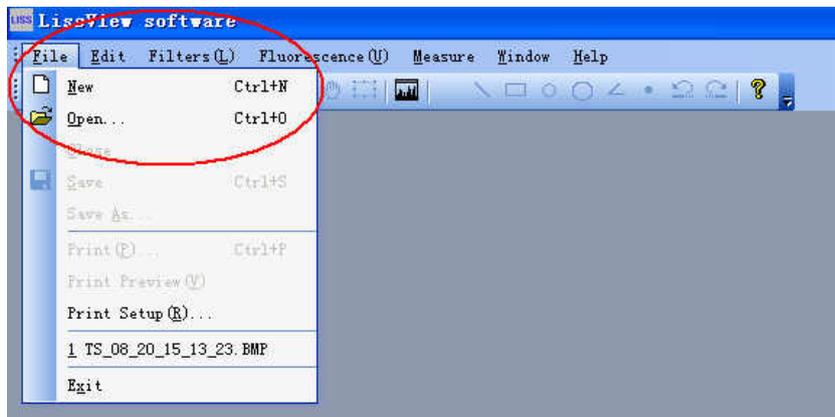
Chapter 3: Image measurement and processing

1. Image measurement

1) Image Process panel

Click “Image Process” panel which is on the right of the window

In “File” menu, click “open” to open a image file in the edit window.



2) To measure image

Measure tool: you can select tools from the toolbar or the “Measure” menu

Line: measure line length

Select a starting point, drag mouse until reach the ending point, then loose the left mouse button.

Rectangle: measure area and perimeter of the rectangle

Select a starting point, and drag mouse until it reach the diagonal point then loose the left mouse button.

Circle: measure area and perimeter of the circle

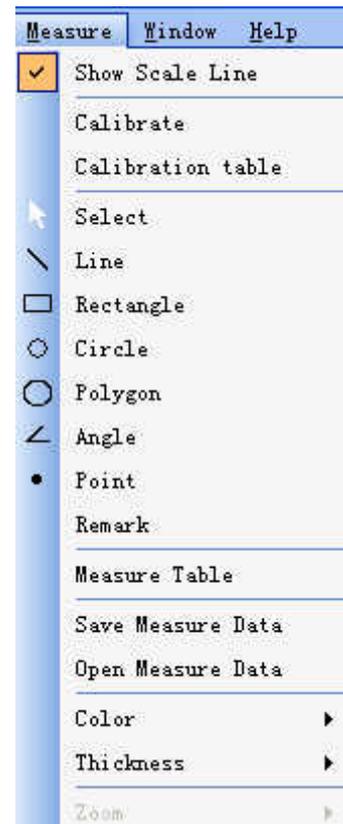
Select Central point, and drag mouse until it reach the certain radius, then loose the left mouse button.

Polygon: to measure area and perimeter of the polygon

Select a starting point and drag mouse to a certain length and select the second point, the third point.....DoubleClick the ending point finally to closed polygon. (The maximum line for a polygon is 50.)

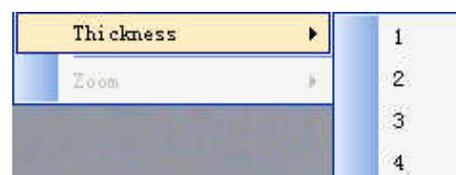
Angle: to measure angle

Press the left mouse button to draw the first side, and loose the mouse, then move the mouse to the end of the second side, clicking.



Change the draw lines color and thickness

In “Measure” menu, select “color” or “thickness” box to setup

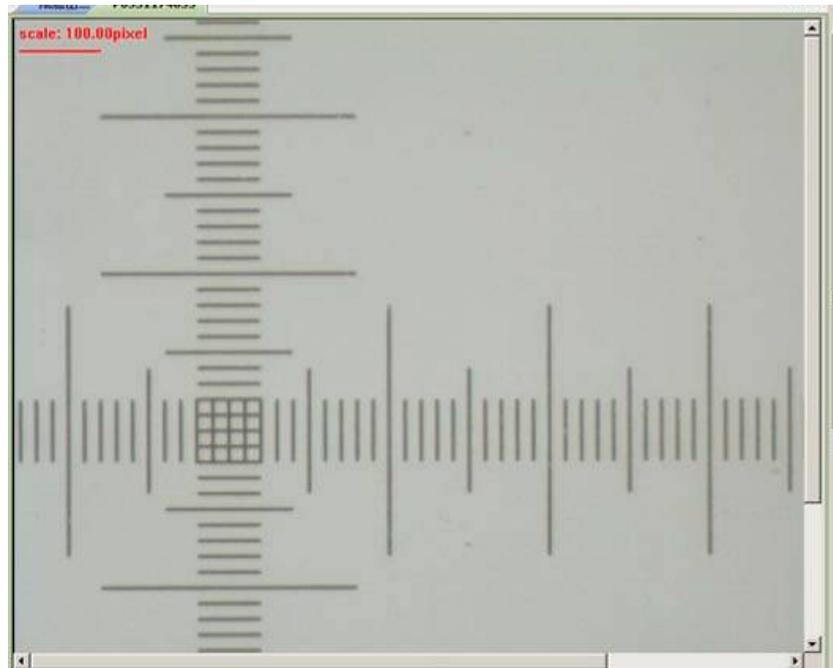


3) Calibration measurement

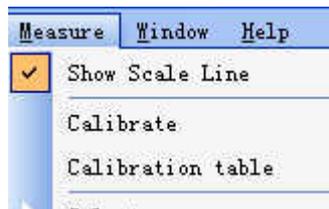
Calibrate settings:

Open a captured image of calibration slide to build benchmark

Important: To make sure measurement accuracy, the image should be identified by objective and resolution. For example, it's captured by using 40x objective in 1024x768 resolution



In “measure” menu, click “calibrate”



Choose a standard length (for example, 0.1 mm), drag mouse left button until it reach the ending point.

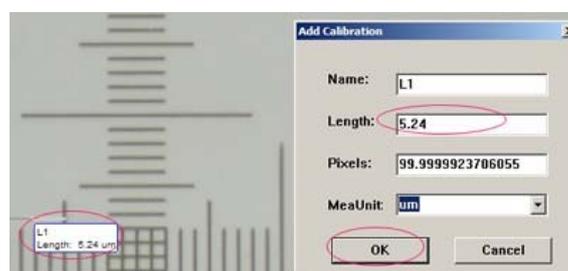
Loose the mouse button, then the “Add calibration” window will auto pop up

Input the actual measured length (0.1) and select the correct measure unit (mm). Now the software knows using certain objective (40x) in certain resolution (1024x768), how many pixels are equal to actual length (0.1mm).

Important: This benchmark, the pixels number, will change if objective or resolution change.

Give a name to identify this calibration benchmark, then click “ok”.

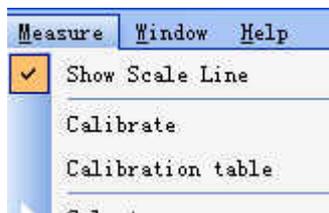
Suggestion: the benchmark name better include objective power (40x) and resolution (1024x768)



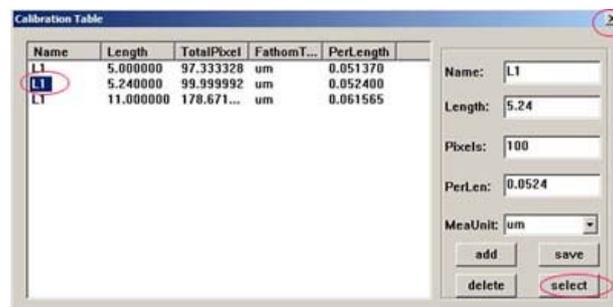
Open a new image



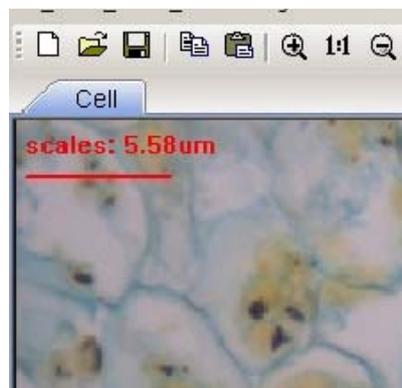
In "measure" menu, select "calibrate table".



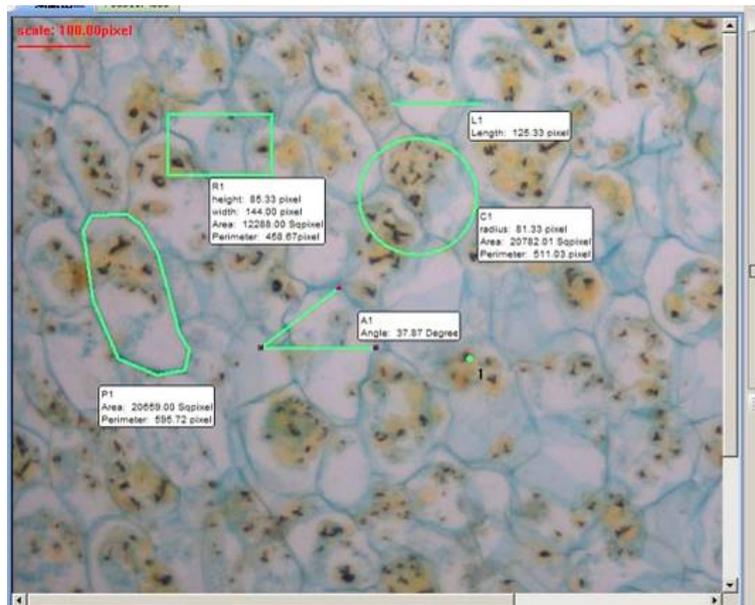
Select the benchmark that matches current image's magnification (objective) and resolution,



The selected benchmark will appear in the top left of the image window, all measurement will be subject to this benchmark.

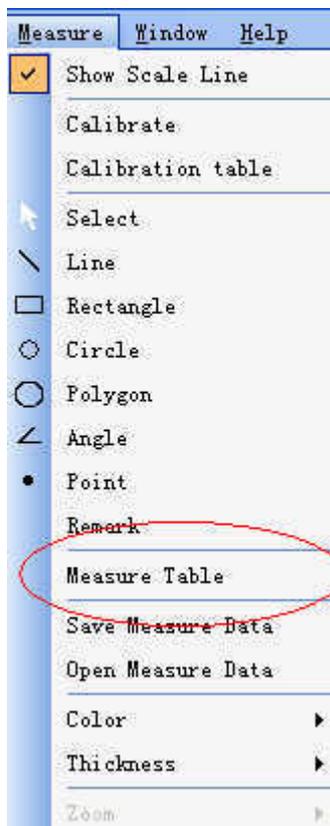


Select measurement tools to measure image



4) Measure table

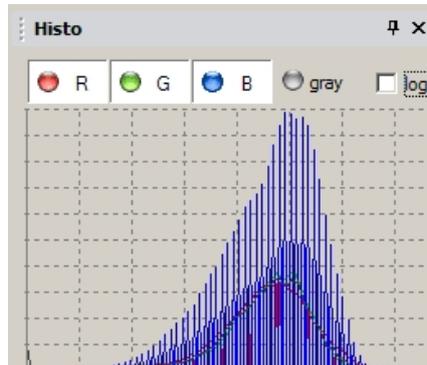
In “Measure” menu, select “Measure Table”, it lists all current measured data, click “output” to save the data in “txt” format



Name	Length	Width	Height	Area	Perimeter	Radius	Angle
L1	7.00						
R1		5.44	3.57	19.43	18.02		
C1				13.66	13.10	2.08	
A1							47.73
P1				35.54	25.12		
I							

2. Histogram

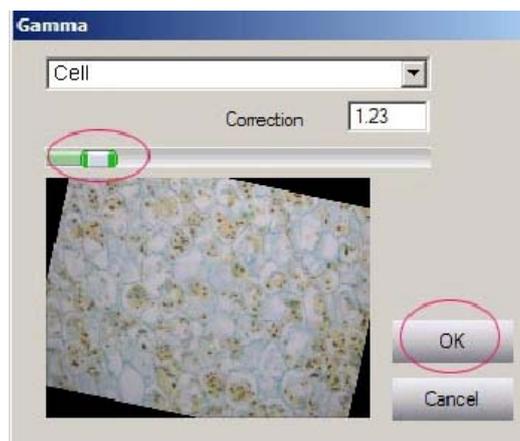
The Histogram window in right corner shows the image's R,G, B status



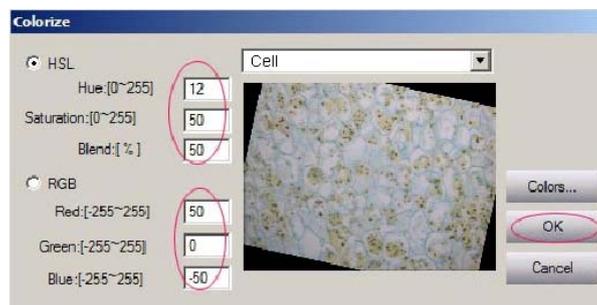
3 Image processing

1) Image process panel

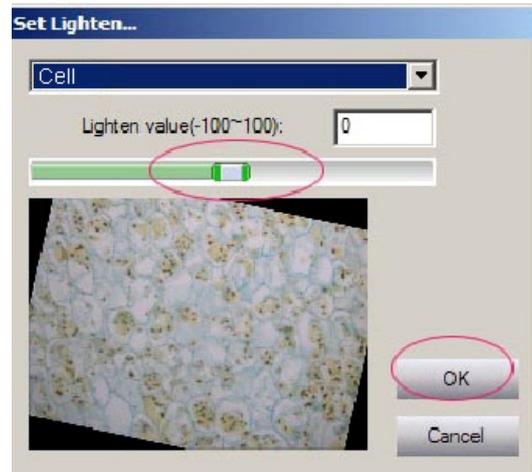
Gamma: Set up Gamma value



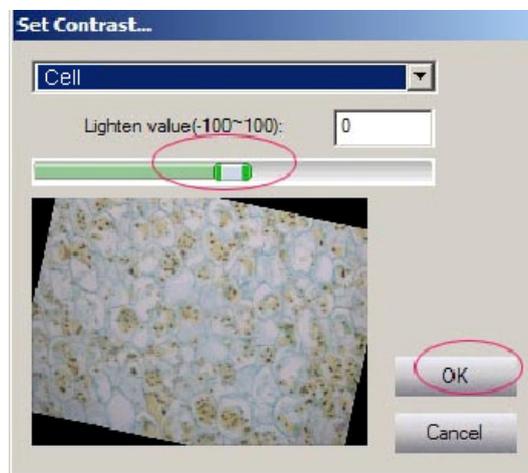
Colorize: Color regulator



Lighten: set up brightness of the image



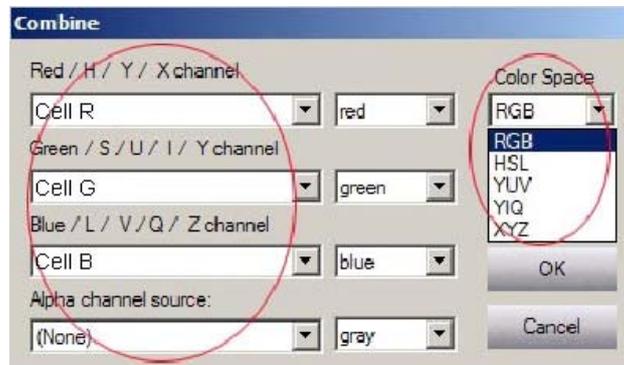
Contrast: set up contrast value of the image



Mix: Mixing two images into one image

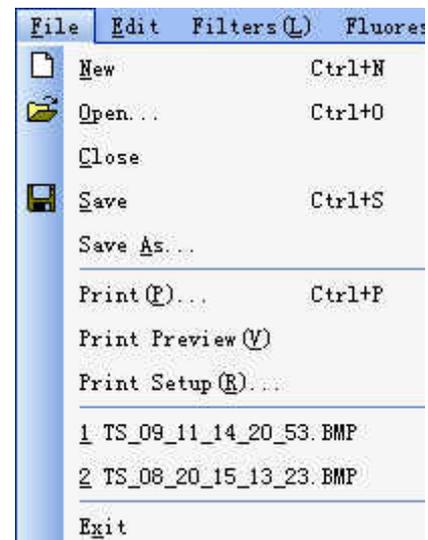


Combine: Combine three images into one image.
 Choosing different images from “Red,Green, Blue Channel”bar.
 Choosing color from “Color Space”bar.
 Click “OK”,the combined image is done.



Chapter 4: Other common functions

1. Save image
 click “save as ”, to change file name or saving folder to save the image.
2. Print image
 Click “Print” to printing image.
 Click “Print Preview ”to preview the ready printing image.
 Click “Print set up” to set up the printer property.



Trouble shooting

Can't find the camera device

- Install the camera driver correctly.
- Check the connection of the camera and the computer.

No image show up after choose preview.

- Some microscope models have switch function to send 100% light to eyepiece or to trinocular tube. To use the camera, need to switch 100% light to trinocular tube.
- unplug other camera device.
- If use laptop, must use AC power. Battery only doesn't have enough power to run the camera.
- Make sure the computer USB port supports USB 2.0.
- Try other USB port.
- Make sure the USB cable connect well, or try other USB cable.

Image resolution is low

- Make sure the computer USB port supports USB 2.0.
- Make sure the USB cable connect well, try other USB cable
- Adjust resolution in the resolution selection window

Image looks blur

- Make sure the computer USB port support USB 2.0.
- Make sure the USB cable connect well, try other USB cable
- Clean the camera lens

Image color is not right

- Adjust image's Brightness/Contrast/Saturation/Gamma/White Balance/ Exposure.
- Adjust the brightness of the microscope.
- Cancel the Black/White fuction