SmartView Pro 1100 Imager System

Instruction Manual

Catalog Nos. UVCI-1100

www.majorsci.com
service@majorsci.com

Version 12H
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Packing list

Standard Package

SmartView Pro 1100 Imager system

-1 × 5.0MP CMOS camera and lens
-1 × 312(302)nm UV transilluminator
-1 × White light lamps module
-1 × Amber filter viewing window

-1 × Power Cord
-1 × SmartView Pro 1100 Imager System Software CD
-1 × Instruction Manual

Optional Package

Blue Light Module

-2 × Blue lights (left and right)
-2 × M7 nuts

White Light Table Module

-1 × White light table
-2 × M7 nuts

Signed by:
Date:

Major Science is liable for all missing or damaged parts / accessories within 7 days after customer received this instrument package. Please contact Major Science immediately regarding this issue. If no response within such time period from consignee party, that will be consignee party's whole responsibility.

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Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Notice: (1) Changes or modifications not expressly approved by the party responsible for could void the use is authority to operate the equipment.

Warning

Major Science SmartView Pro Imager System series has been tested and found to comply with the limits for the CE regulation. Also, SmartView Pro Imager System series is RoHS compliant to deliver confident product which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the instrument series is operated in a commercial environment. This instrument series used together with power supply unit generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this instrument series in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended for the user to read the following points carefully before operating this equipment.

1. Read and follow the manual instructions carefully.
2. Do not alter the equipment. Failure to follow these directions could result in personal and/or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. Never use this instrument series without having the safety cover correctly in position.
6. Do not use the unit if there is any sign of damage to the external tank or cover. Replace damaged parts.
7. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components which may ignite such materials.
8. Refer maintenance and servicing to qualified personnel.
9. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to make a proper connection may create fire or shock hazard.
10. Use appropriate materials and operate correctly to avoid possible hazards of explosion, implosion or release of toxic or flammable gases arising from overheated materials.
11. The instrument is intended for scientific research use only, and must be

operated by qualified personnel who realize the potential risks of the use of this instrument. Major Science makes no claim that its instruments are designed or certified as medical device; no presentation, promises, express warranty or implied warranty will be made concerning the suitability of these instruments for any medical use. Major Science will not provide customers any notice or certification concerning its products being compliant as a medical device.

Safety Information

Use high level of precaution against any electrical device. Before connecting the electrical supply, check to see if the supply voltage is within the range stated at the rating label, and see to it that the device be seated firmly. Place the unit in a safe and dry location; it must NOT touch the surrounding. Follow the safety precautions for chemicals / dangerous materials. If needed, please contact qualified service representative or service@majorsci.com

Environmental Conditions

Ensure the instrument is installed and operated strictly in the following conditions:

1. Indoor use only
2. ≤95% RH (non-condensing)
3. 75 kPa – 106 kPa
4. Altitude must not exceed 2000 meters
5. Ambient to 40°C operating temperature
6. Pollution degree: 2
7. Mains supply voltage fluctuations up to ±10% of the normal voltage

Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.

SmartView Pro Imager System series has been designed to use with shielded wires thus minimizing any potential shock hazard to the user. Major Science recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution accidentally spilling into the instrument, it must be dried out for a period of time (at least 2 hours) and restored to NORMAL CONDITION before each operation.
2. Never connect or disconnect wires loading from the power jacks when the red indicator light of power switch is on.
3. WAIT at least 5 seconds after stopping a run before handling output leads

or any connected apparatus.

4. ALWAYS make sure that your hands, work area, and instruments are **clean** and **dry** before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly grounded AC outlet.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if damage is suspected.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight, etc.).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.
4. Use high level of precaution against the damages on the unit.
5. Do not operate the unit out of environmental conditions addressed above.
6. Prior to applying any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to see if the proposed method will damage the equipment.

Equipment Operation

Follow the guidelines below to ensure safe operation of the unit:

1. Check the displayed figures to see if the unit is functioning correctly before using this unit.
2. NEVER access dangerous chemicals or other materials to prevent possible hazard of explosion and damage.
3. A temporary conductivity caused by condensation might occur even though this series is rated Pollution Degree 2 in accordance with IEC 664.

To Disposal UV tubes

The UV tubes contain mercury; please dispose of the tubes in accordance with local laws. It is important to handle the waste tubes with care to ensure public health and the environment. For further information about recycle waste tubes, please see www.lamprecycle.org.

Equipment Handling

Follow the guidelines below to ensure safe move of the device:

1. Carry the device at least two people.
2. Do not over than knuckle height when you moving the device.
3. Move the device by cart and assist the device do not drop.

Symbols

The symbols used on SmartView Pro 1100 Imager System are explained below.

Indicates an area where a potential shock hazard may exist.
Consult the manual to avoid possible personal injury or instrument damage.

Indicate a warning of UV radiation.

While using the UV Transilluminator, be sure the operating personnel is properly protected.

Indicates disposal instruction.
DO NOT throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

Potential Risk and Preventive Measure

1. Risk assessment table

Potential Risk / Frequency	Frequent	Likely	Possible	Rare	Unlikely
Bruise			✓		
Pinch			✓		
Slash					✓
UV radiation dangerous					✓
Power cord plug wrong				✓	

2. Preventative measures of risk

Potential Risk	**Preventive measures**
Bruise	Do not put the machine near the table edge. Move the machine by cart.
Pinch	Do not put your hands on the open door.
Slash	Prevent hard impact on the acrylic panel.
UV radiation dangerous	Do not open the darkroom door while you turn on the UV light.
Power cord plug wrong	Observe correct adapter plug.

Section 1 Introduction

1.1 Overview

SmartView Pro Imager System is the next generation of gel documentation instrument. It is specifically designed for ease of use for any lab experiment with gel imaging. SmartView Pro Imager System is packed with 5.0 megapixels high sensitivity and resolution camera for outstanding imaging quality. The system provides you convenience such as 312(302)nm pull out UV transilluminator for easy gel cutting, pre-focused lens for one touch image capture, user friendly software interface, and the innovative iPad/PC remote control(1200 series only). The expendable accessories such as epi-blue module and white light table are also available for environment safe nucleic acid stains or western blot analysis.

1.2 Feature

- Fluorescent imaging
- 5.0 megapixels CMOS camera
- Mounted USB port for saving images and analyzing samples
- Maximum field of view 21 x 26 cm (8.3 x 10.3 inch)
- Compact configuration and size
- Inner 6 x 1W white light LED for uniform white light illumination
- Safety door switch
- Two kinds of light sources for optional (safety blue light and whit light table)
- High camera resolution
- Easy to use software for image analysis

1.3 Components guide

Front View

Rear View **Side View**

Section 2 Technical Specification

Model Name	**UVCI-1100**
Total Weight	Approx. 24.5 kg
Unit Dimension (W × D × H)	410 × 405 × 570mm
Construction Material	Painted iron metal, ABS front door
Display	LED indicator light
Rated Voltage	100 – 240V~, 50/60Hz, 2A
Power	120W
Connectivity	USB
Image Storage	PC
Save Image Format	BMP/JPEG/PNG/TIFF, 8 bit; PNG/TIFF, 16 bit
Safety Regulation	CE、FCC
CMOS Camera	
Camera Type	CMOS camera
Image Sensor	1/2.5” 5M Pixel Monochrome sensor
Resolution (H × V)	2592 × 1944 pixels
Video Output Format	RAW 8 bit / 10 bit / 12 bit
Cell Size (H × V)	2.2 × 2.2 μm
Max. Frame Rate	14fps
Interface	USB3.0
Dynamic Range	70.1DB
Grayscale	12 bit, 0 – 4095 gray levels
Lens	
Focal Length	6mm
Aperture	F1.2
Filter (for camera) **Ordered Separately*	Optical EtBr filter / Optical SYBR Green filter / Yellow Amber filter / Orange Amber filter
Darkroom	
- Built-in Drawer Type UV transilluminator 312(302) nm, Light source: 8W × 6 tubes	
- Built-in LED white light, Light source: 1W × 6 lamps	
- UV safety door switch	
- Maximum field of view 21 × 26cm	
- (optional) Blue Light Module	

- (optional) White Light Table	
Viewing Window	
- Built-in UV viewing window	
- Built-in viewing window Amber filter (560nm)	
PC Minimum Hardware Requirements	
Processor	1.8GHz Pentium® IV or equivalent AMD Athlon® processor
Memory	1GB
Storage	1GB available HD space
Media	CD-ROM drive
Connectivity	1 port USB 2.0
Display	1280 × 800 resolutions
Operating System	Windows® 7 SP1/ Windows® Vista SP1 / Windows® XP SP3/ Windows® 8/ Windows® 10
PC Software	
- Control UVCI-1100	
- Image capture	
- Image processing and gel analysis	

Section 3 Installation Instructions

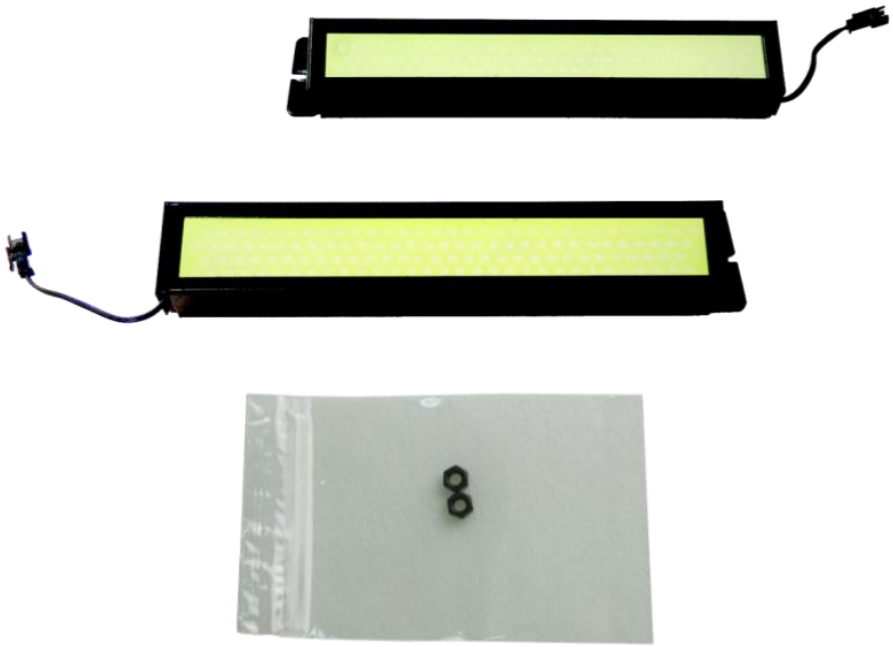
SmartView Pro Imager System comes with epi white light and trans-UV as standard. Optional blue light module or white light table is offered for expansion to offer higher flexibility. There are few procedures to install the optional devices: place the unit on a sturdy, level safe and dry place, then follow the instruction below for installation.

Note: Please skip ahead to section 3.3 if no optional lighting modules are included with your purchase.

Tool Required: 7M/M Socket wrench (not provided)

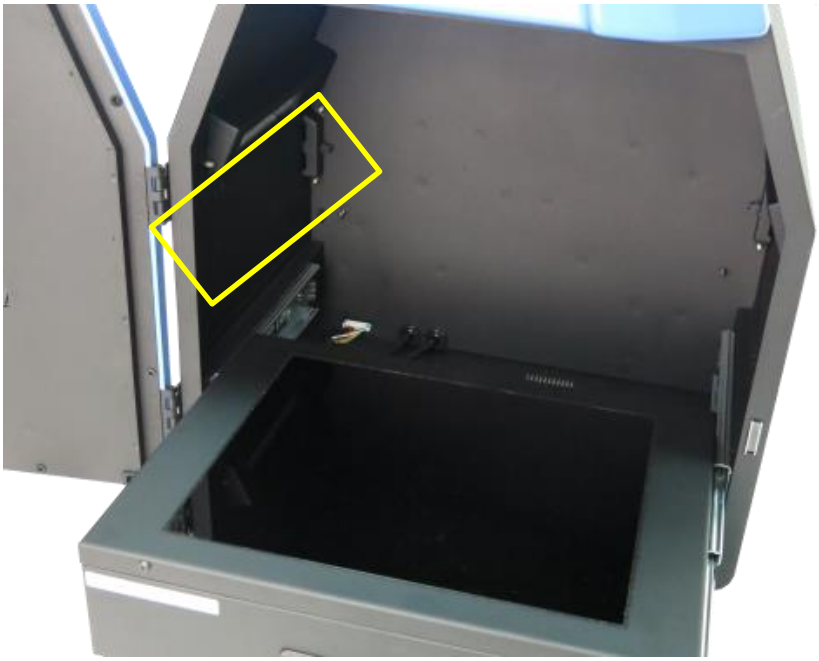
3.1 Installing Blue Light Module (Optional)

Step1 Get the blue light module ready. There are two blue lights (left and right) and 2 pieces of M4 (M4x7x3.2) nuts in the package.

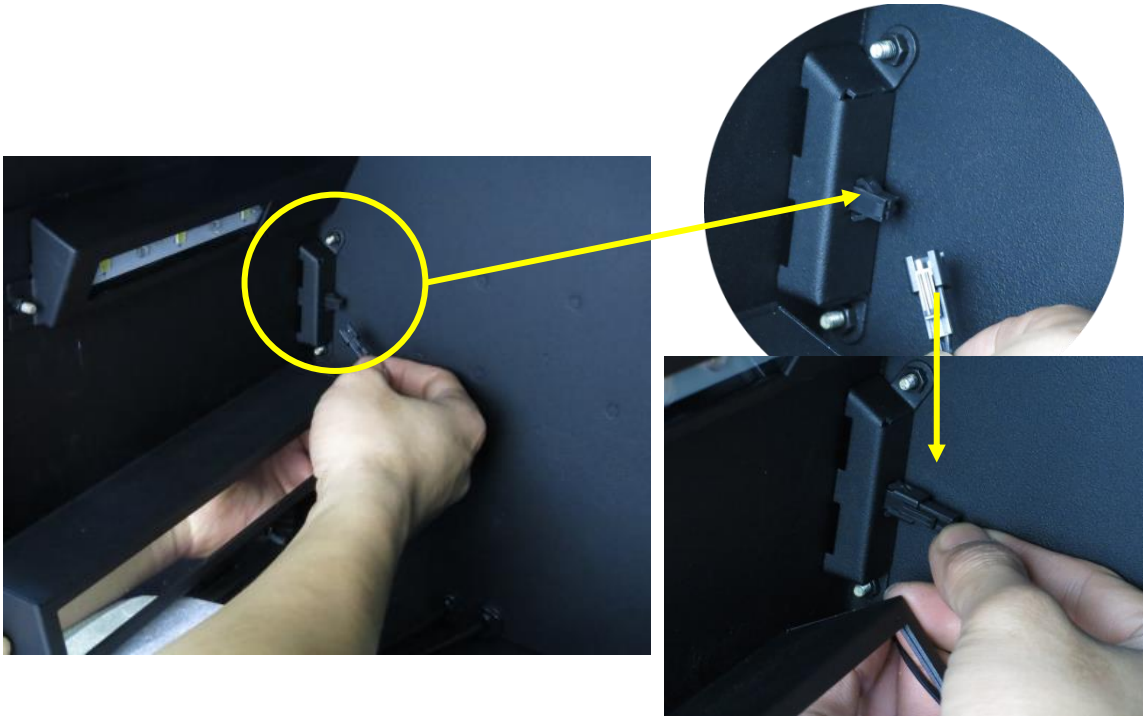


M4 nuts

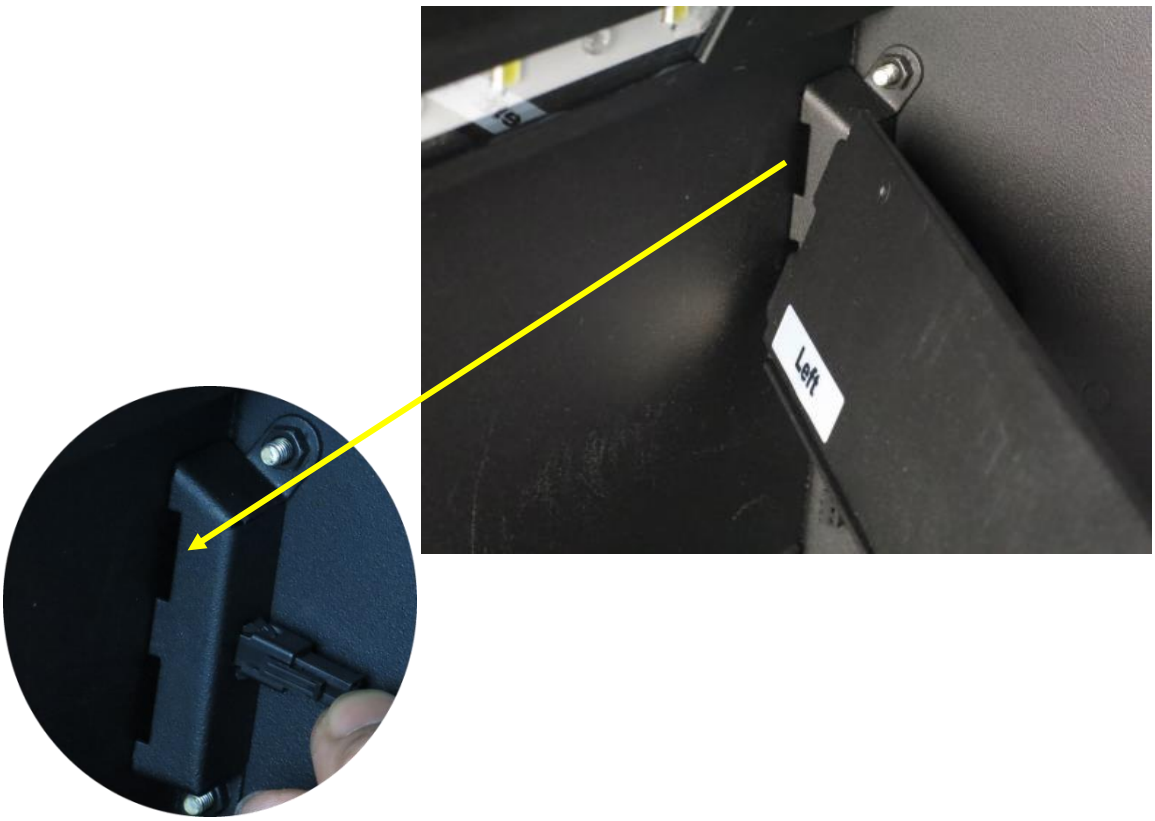
Step2 Open the darkroom door and hold the left blue light on left inner wall.



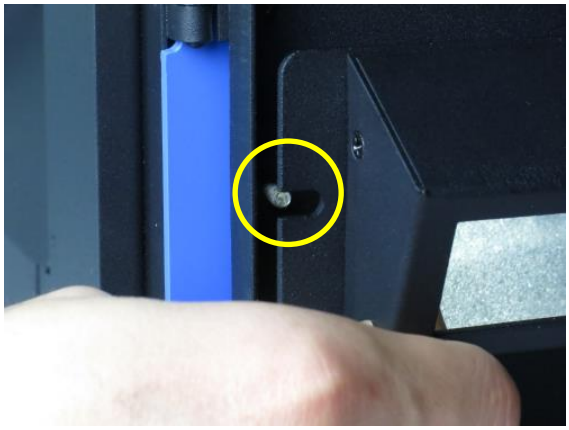
Step3 Connect the blue light quick connector with darkroom inner socket.



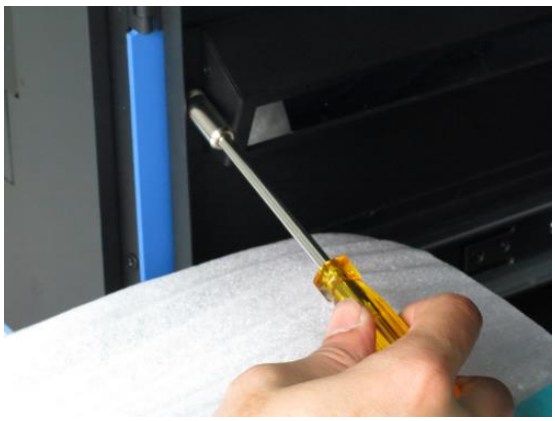
Step4 Insert the blue light into the inner lining of darkroom.



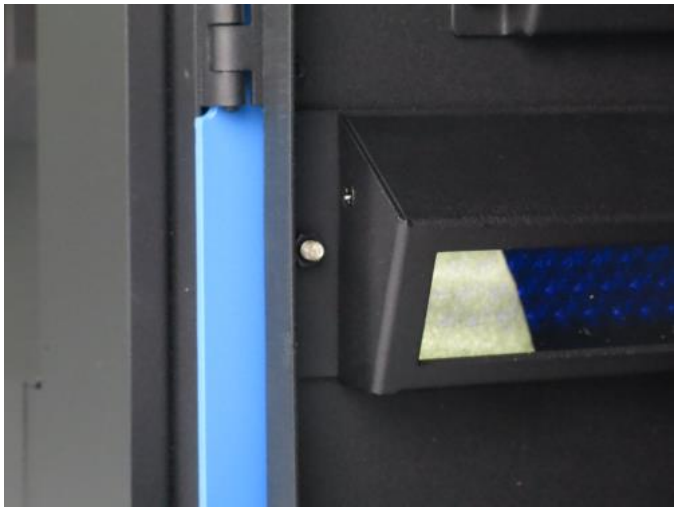
Step5 Put the other side of blue light into the stud of darkroom inner wall.

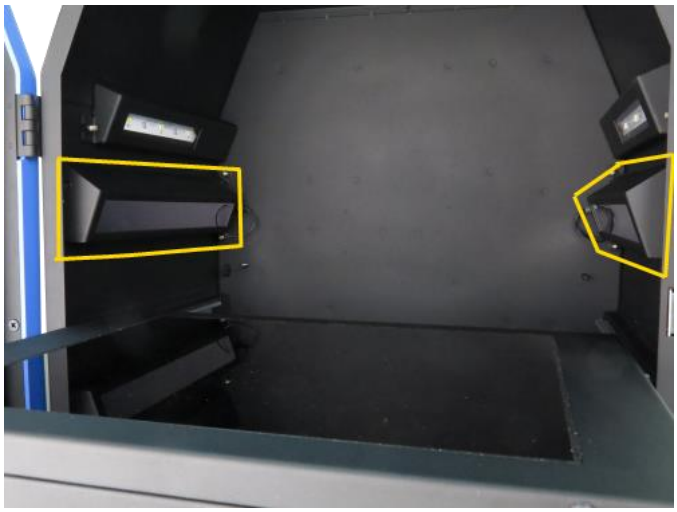


Step6 Take a nut from parts kit. Use 7M/M socket wrench to tighten the nut on the stud.



Step7 The blue light is fixed as shown below. Please repeat steps 2~6 for right side blue light to install it in the darkroom.





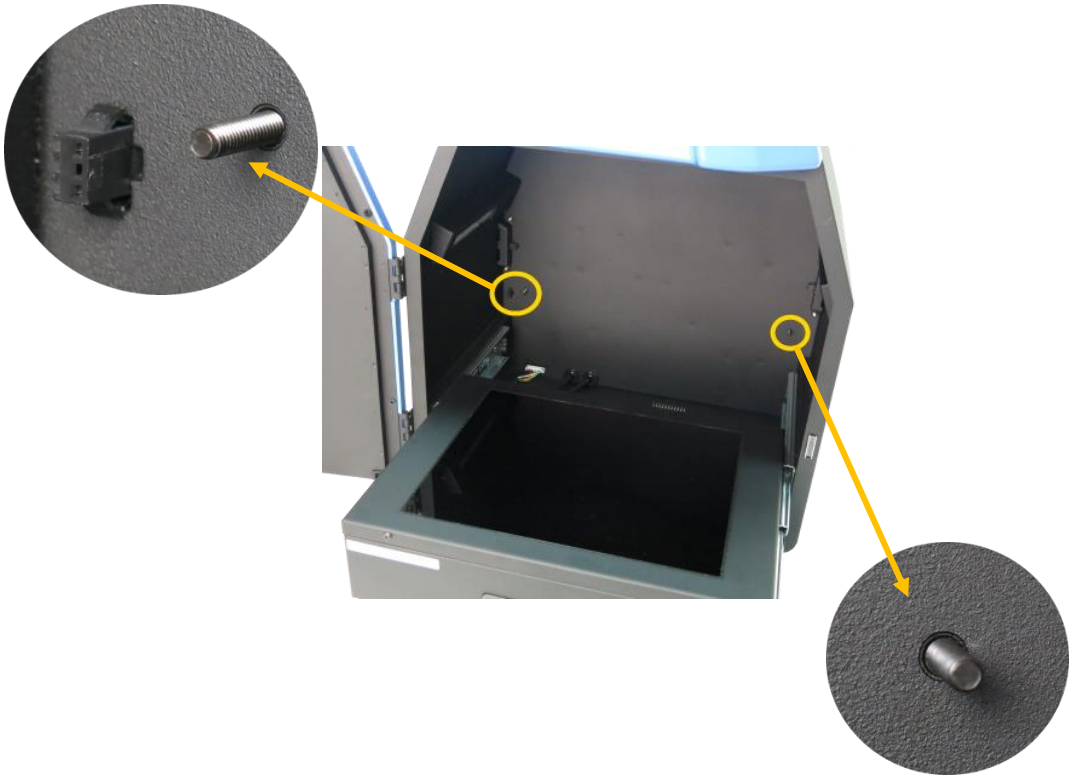
3.2 Installing White Light Table Module (Optional)

Step1 Get the white light table module ready. There are one white light table and 2 pieces of M4 (M4x7x3.2) nuts in the package.

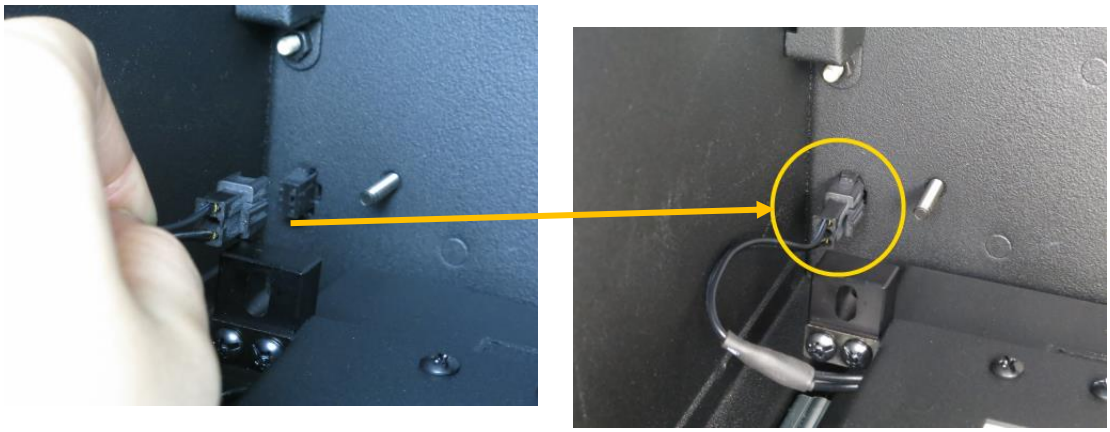
Before assembling, please check to make sure the screw studs on both sides of the white light table are in the upright position.

M4 nuts

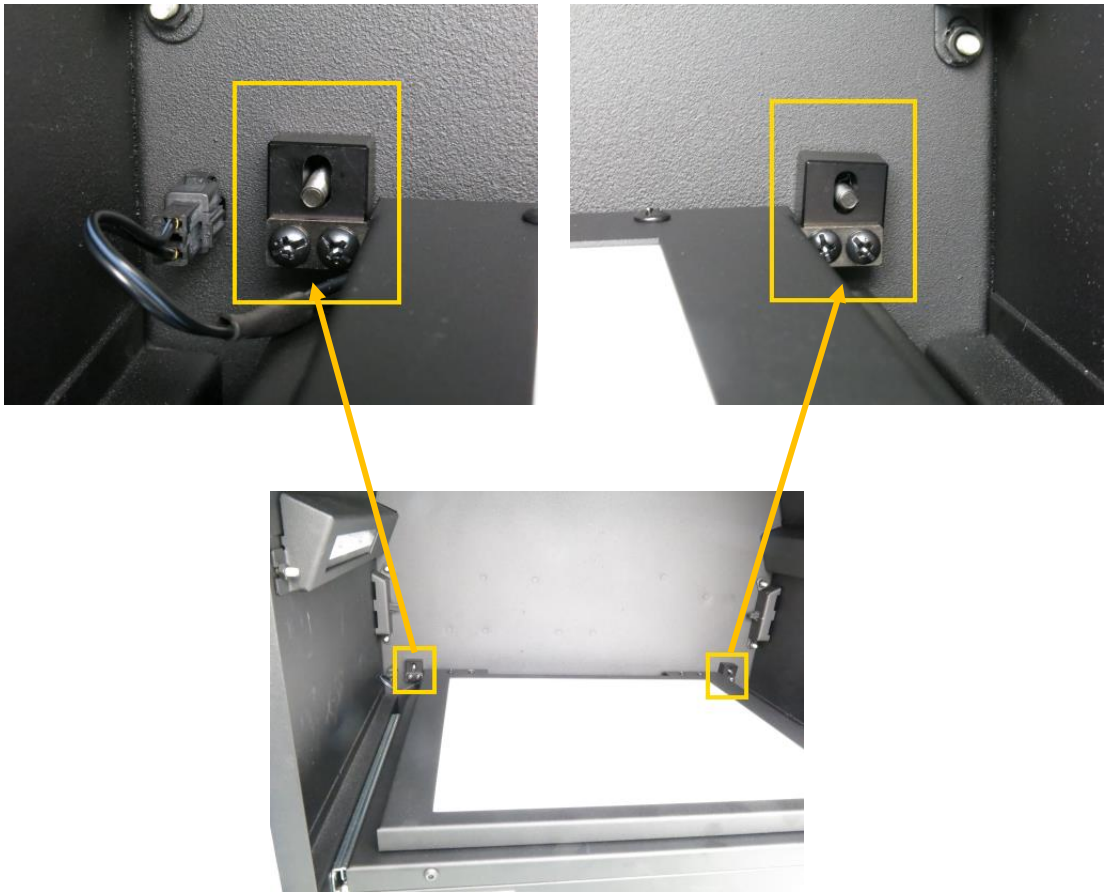
Step2 Open the darkroom door and place the white light table on the UV transilluminator. There are two studs and a socket on the back wall.



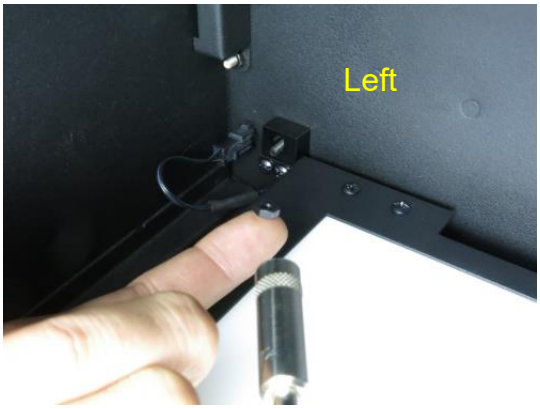
Step3 Connect the white light table quick connector with darkroom inner socket

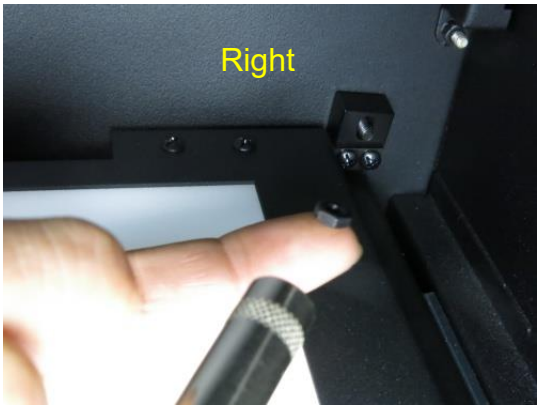


Step4 Make sure the stud holders on the white light table align with the studs of darkroom.

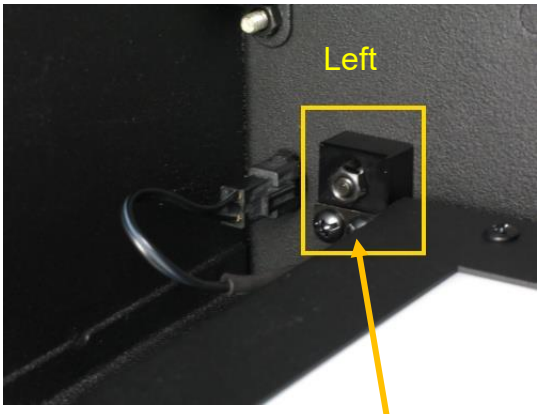


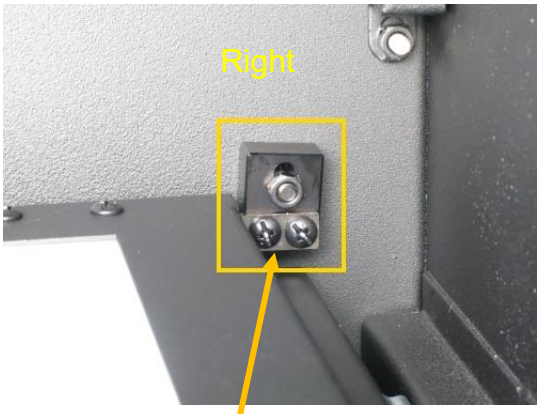
Step5 To take nuts from parts kit. Use 7M/M socket wrench to tighten nuts on the studs.

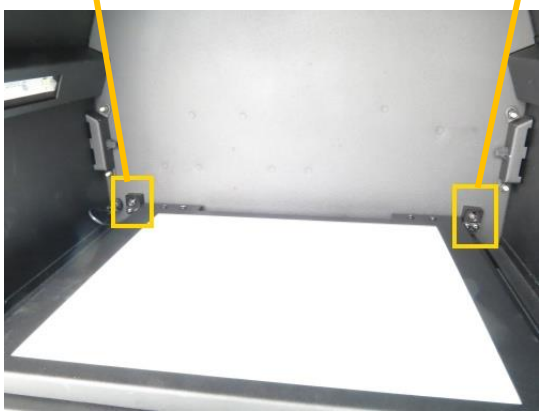




Step6 The white light table is fixed as shown below.







Step7 All accessories are installed as shown below.

Note: If necessary, please manually adjust the aperture to have the best performance while working with White Light Table.

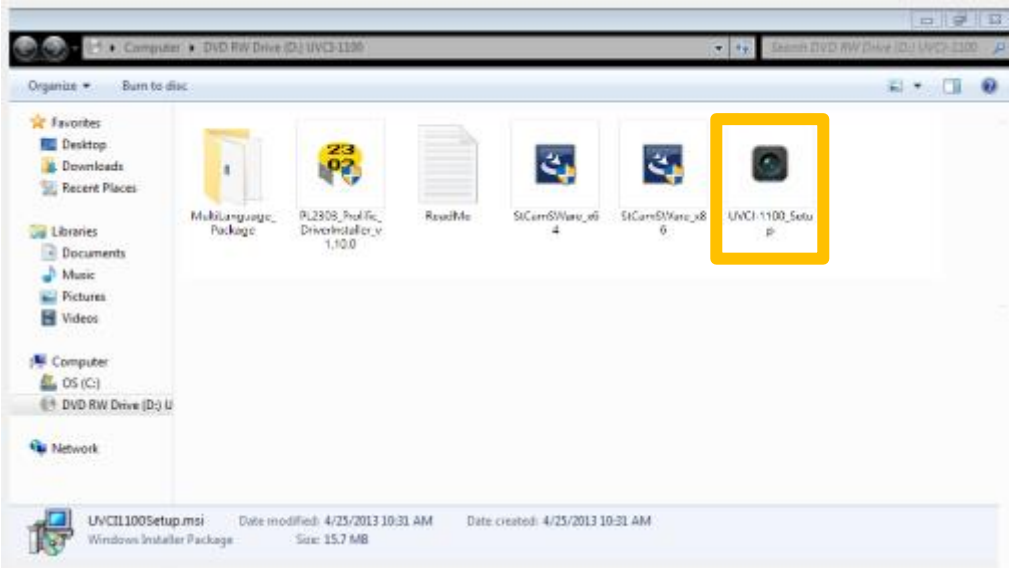
Aperture ring

F1.2 - Close

For more details, please refer to the operation instructions on 4.2.6.

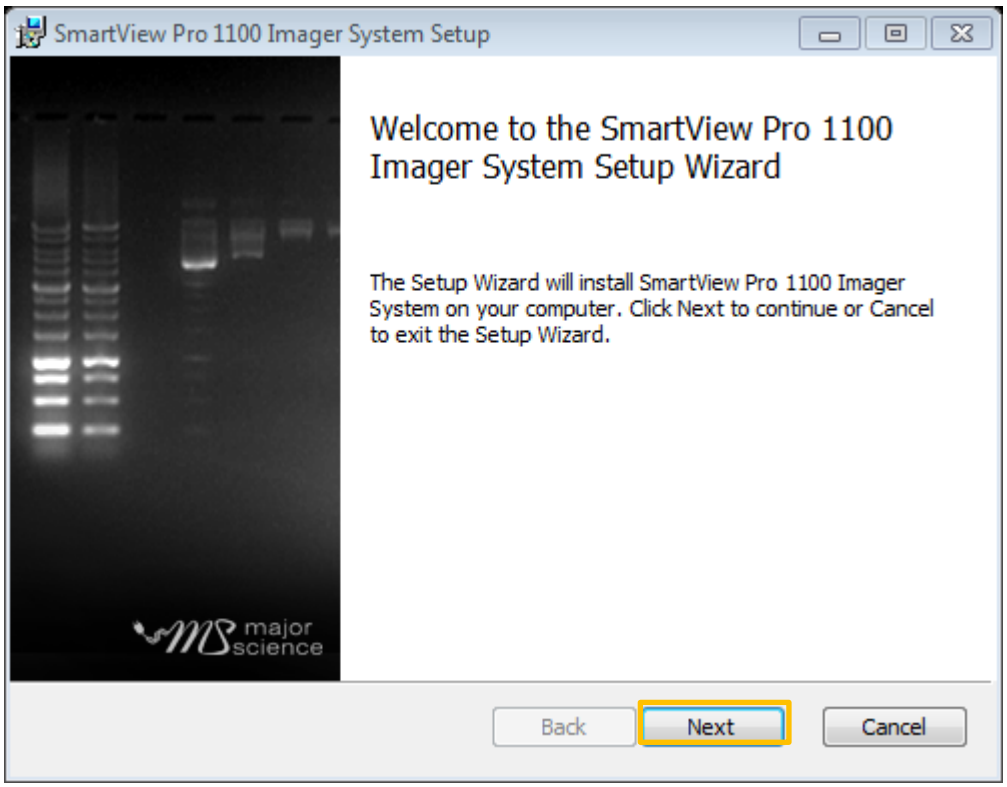
3.3 Install SmartView Pro 1100 software

Step1 Select UVCI-1100 setup program.

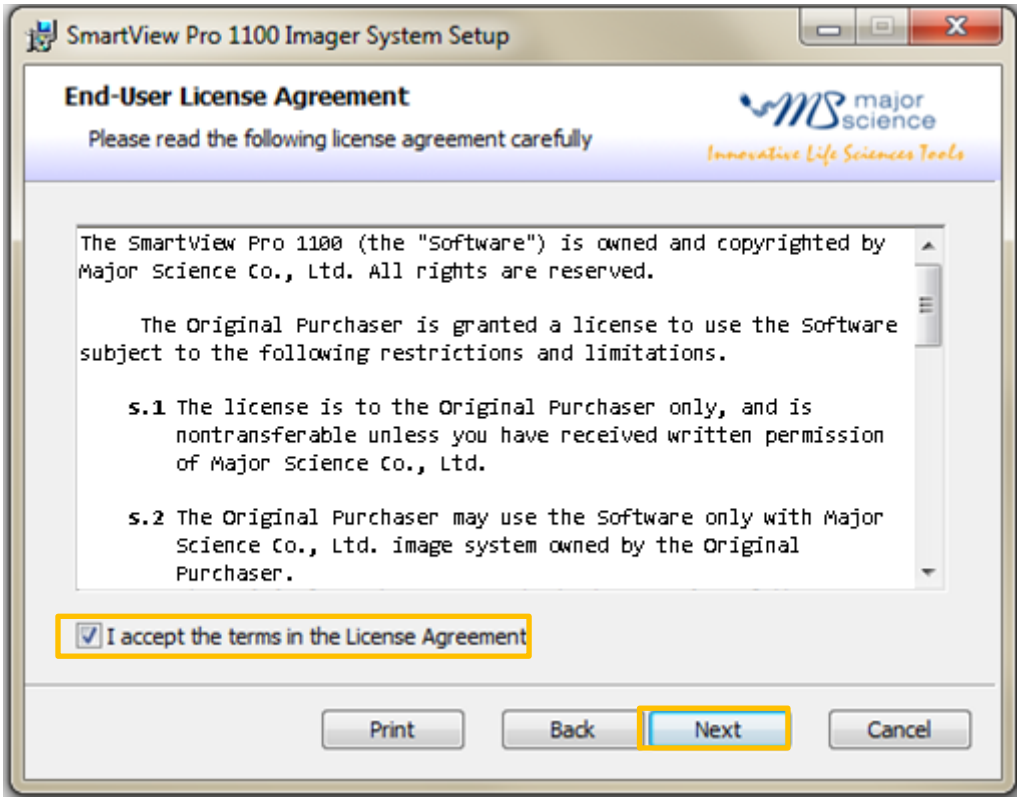


According to user's system, the software will choose language automatically. (English/Traditional Chinese/Simplified Chinese)

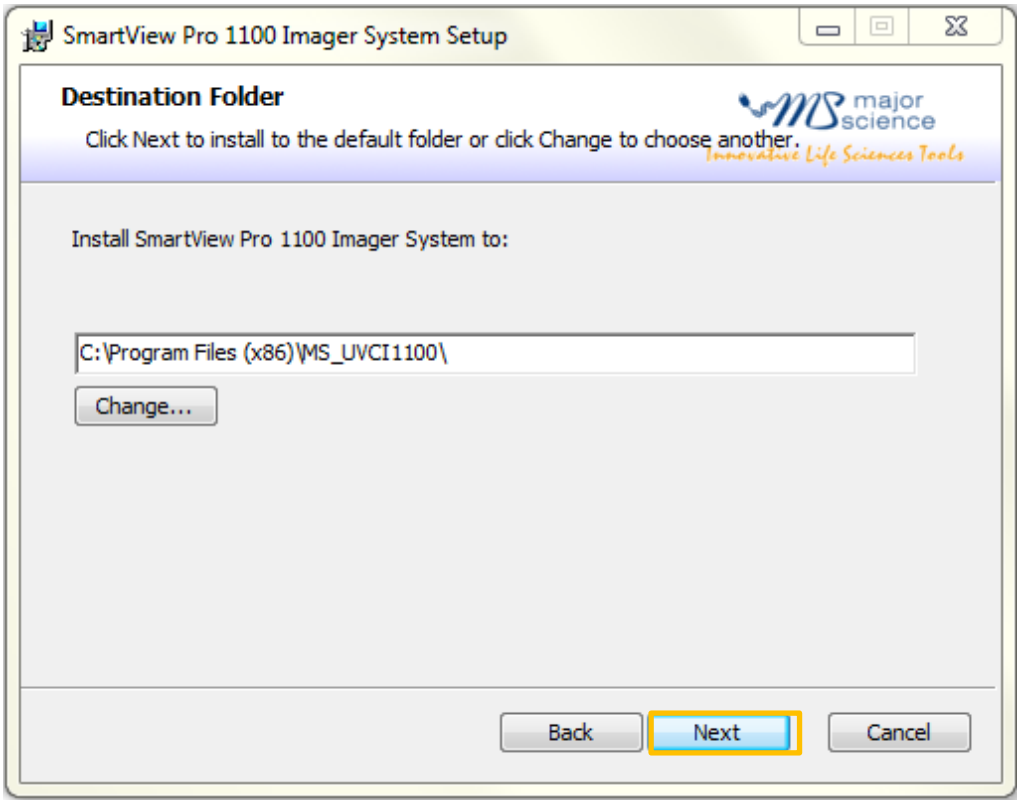
Step2 Install SmartView Pro 1100 setup program.



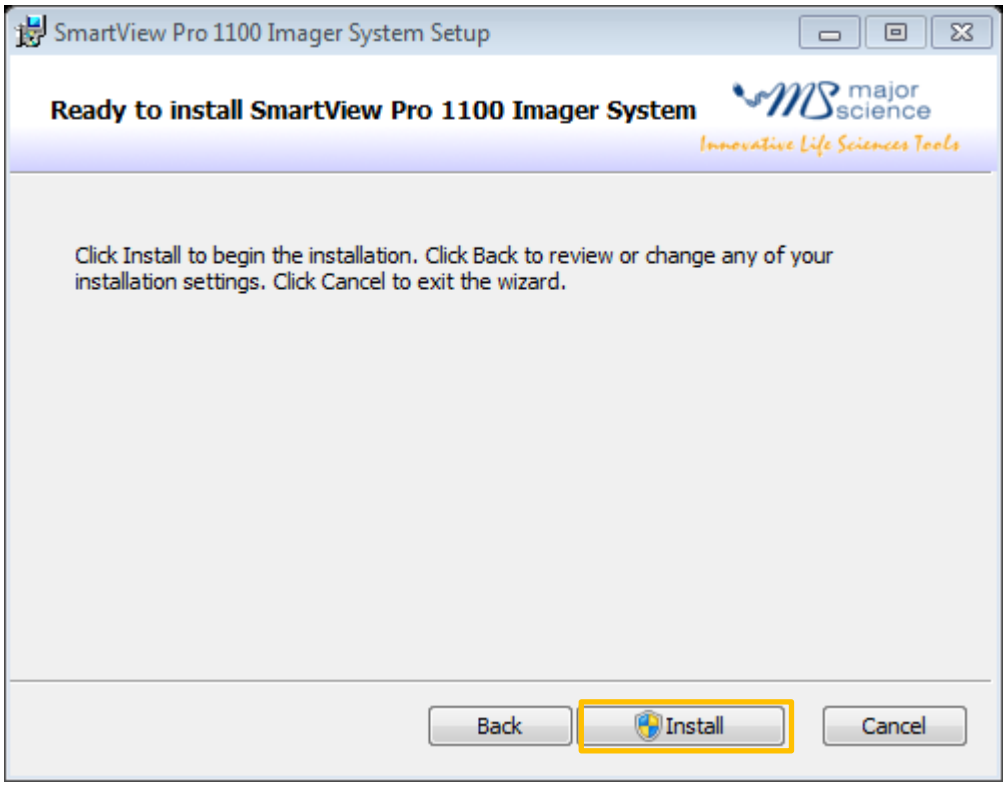
Step3 Accept the license agreement and then press the “next” to proceed.



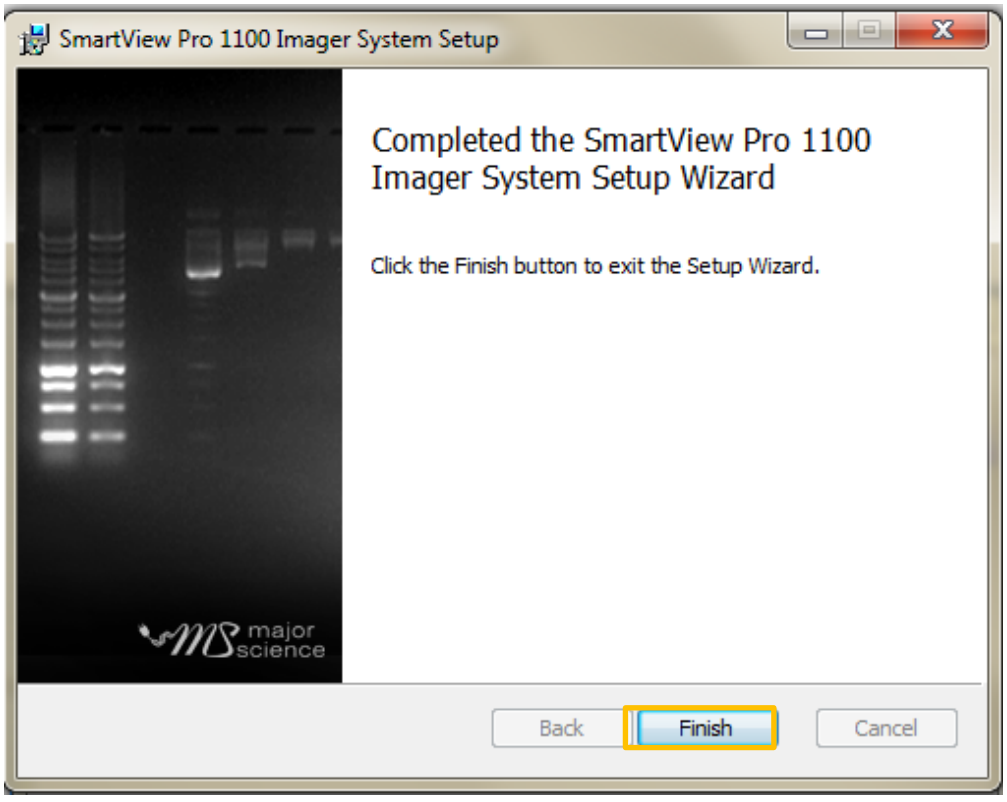
Step4 Save this program in your specifying location then press “Next” to proceed.



Step5 Click install to begin the installation.



Step6 Press "Finish" to complete the program installation.

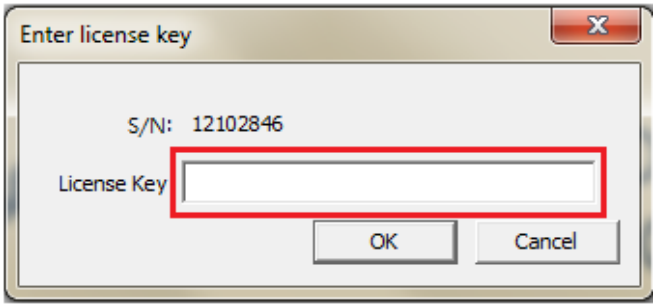


Step7 A dialog will pop up to ask you restart your system, press “Yes” to restart now or “No” if you plan to manually restart later.

Note: Please restart the computer when you install all software well down.

Step8 The short paths will be shown on desktop.

Step9 Double click the “SmartView Pro 1100 Imager System” icon in order to key in the license key. (on the camera and CD box cover)



Appendix: Install Camera Software

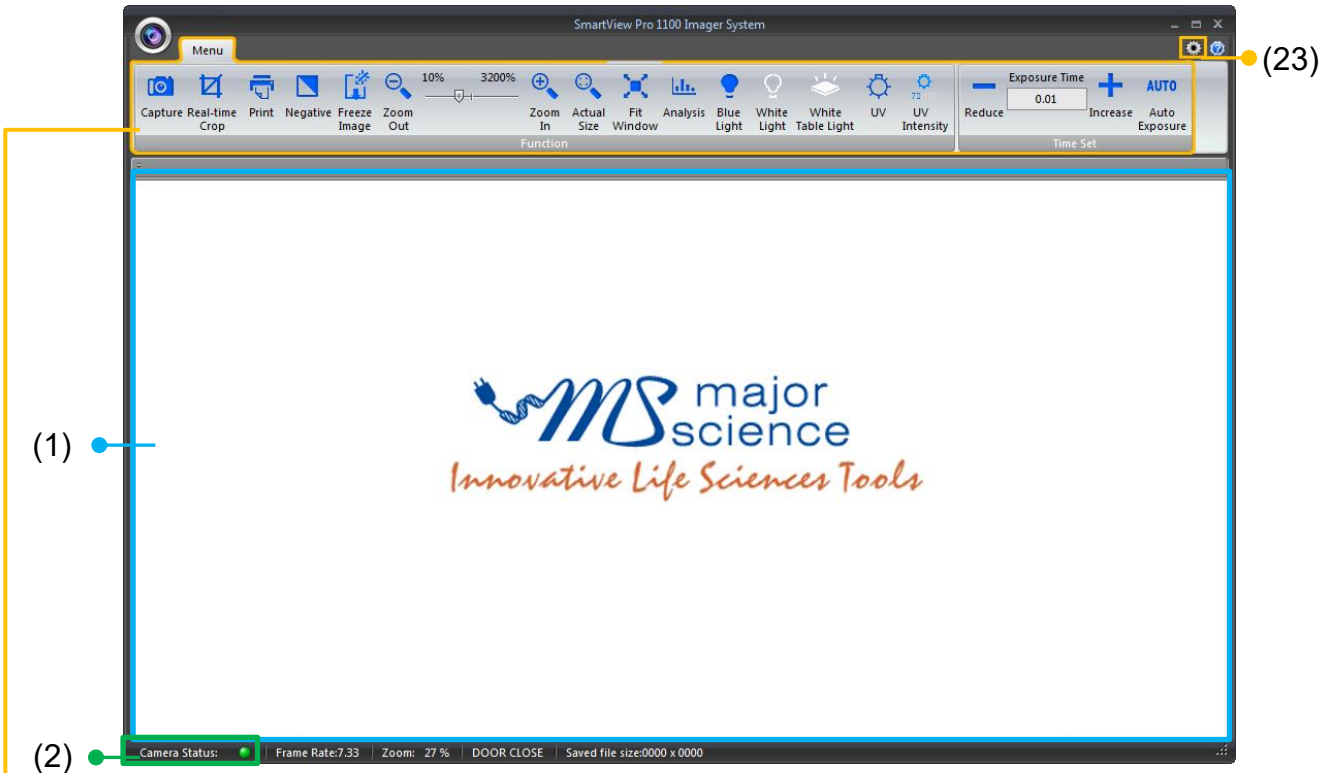
Note: The license key must match the camera serial number.

Note: Do not unplug the USB wire of SmartView Pro Imager System when you operate the analysis software. If you need to disconnect the SmartView Pro Imager System with your computer, please close the analysis software first.

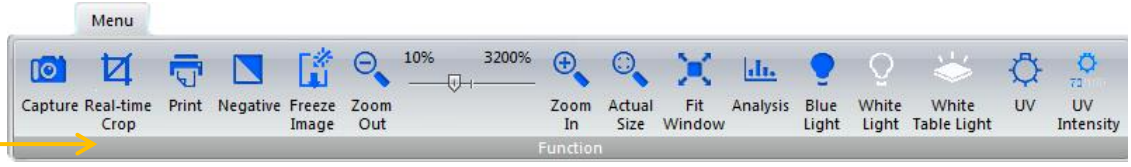
Section 4 Operation Instructions

4.1 Capture/Analysis Control interface

4.1.1 Capture Screen Interface

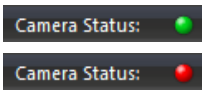


(3)~(18) **Function**



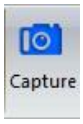
(19)~(22) **Function**

1. **Display screen**: This area shows the real-time or captured image.

2. 

Camera Status : Connect
Camera Status : Disconnect

Function:

3. 

Capture: This button allows you to acquire the current image and save it

4. 

Real-time Crop: Crop the image you need and press **Capture** to save the area you just cropped.

5. 

Print: Print out the image using the printer.

6. 

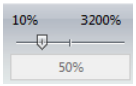
Negative: To reverse the image between black and white (not applicable to colored images).

7. 

Freeze Image: This button freezes your image. UV can be turned off immediately to prevent damage of DNA. And the image can be printed out and/or be captured.

8. 

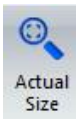
Zoom Out: To show a larger area of mage.

9. 

Displays the percentage of zoom level. Use the scroll bar to zoom in or out.

10. 

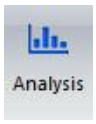
Zoom In: To examine the smallest details of an image.

11. 

Actual Size: Adjust the picture to original size.

12. 

Fit Window: Adjust the image size to fit your display window.

13. 

Analysis: Process to the gel analysis software.

14. 

Blue Light: ON/OFF switch for the Blue light.

15. 

White Light: ON/OFF switch for the White light.

16. 

White Light Table: ON/OFF switch for the White light table.

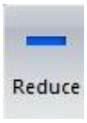
17. 

UV: ON/OFF switch for the UV transilluminator

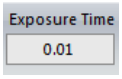
18. 

UV Intensity: Change the UV light intensity between 70% and 100% illumination.

Time Set:

19. 

Reduce: Decrease the exposure time of camera.

20. 

Exposure Time: Manually input the exposure time (range: 0.01-30 sec) to adjust.

Note:
It is recommended not to set the exposure time above 5 seconds in normal usage. Overexposure tends to affect the clarity of image, in addition resulting in slight UV tubes exposed in the image.

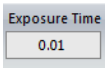
21. 

Increase: Increase the exposure time of camera.

22. 

Auto Exposure: Adjust the exposure time of camera automatically. Press **Auto Exposure** to disable the function first if you want to manually adjust the exposure time.

Note:

Depending on the autoexposure setting, the system may take up to 30 seconds for the camera to process and calculate the best exposure time. The autoexposure time is capped at a maximum of 3 seconds to prevent the system from over-exposure. In the event that increased exposure time is required beyond 3 seconds, please manually insert a time in the 

frame or manually increase with the 

button.

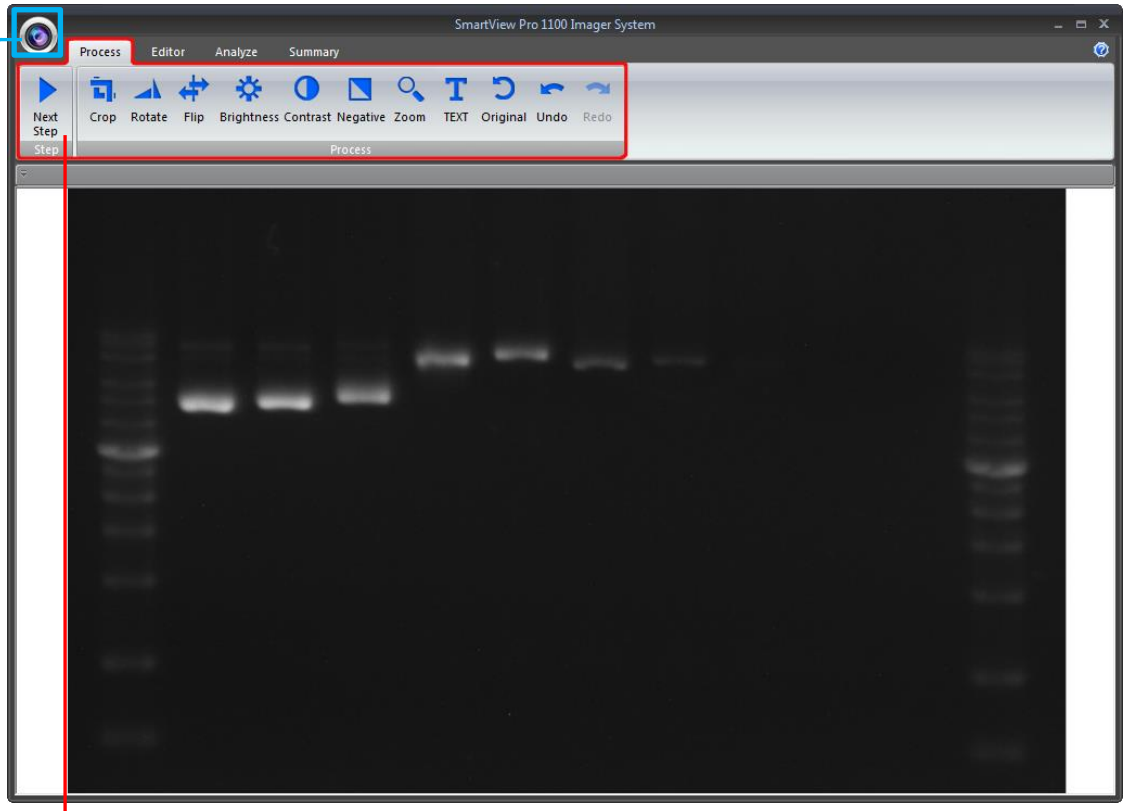
23. 

Default setting: To select default setting you want (see 4.2.7 Default setting).

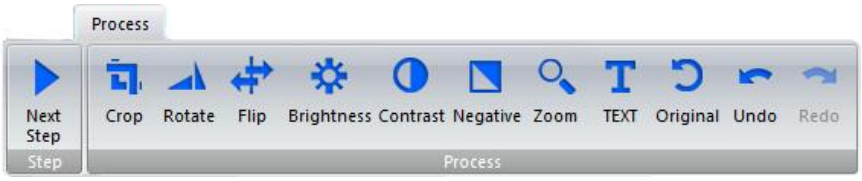
4.1.2 Analysis: Image Process Interface

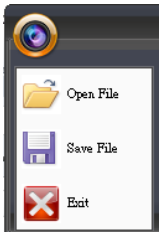
In the capture screen interface, press Analysis to enter the gel analysis interface.

(1)



(2)~(13)



1. 

a. Open the data file.
b. Save the file.
c. Exit the program.

Step:

2. 

Next Step: Go to next step to select analysis mode: gel positive/ gel negative/ dot positive/ dot negative.

Process:

3. 

Crop: Select the cropping area of the image.

4. 

Rotate: Rotate the image.

5. 

Flip: Flip the image according to the orientation you desired.

6. 

Brightness: Adjust the brightness of the image.

7. 

Contrast: Adjust the contrast level of image.

8. 

Negative: To reverse the image between black and white (not applicable to colored images).

9. 

Zoom: To show a larger area or to examine more closely of the image.

10. 

Text: Add text on the image.

11. 

Original: Return back to original image without any editing.

12. 

Undo: Return to previous step.

13. 

Redo: Repeat last action.

4.1.3 Analysis: Image Edit Interface

Step:

1. 

Previous Step: Return to previous step, current setting will be deleted.

2. 

Next Step: Go to next step.

Editor:

3. 

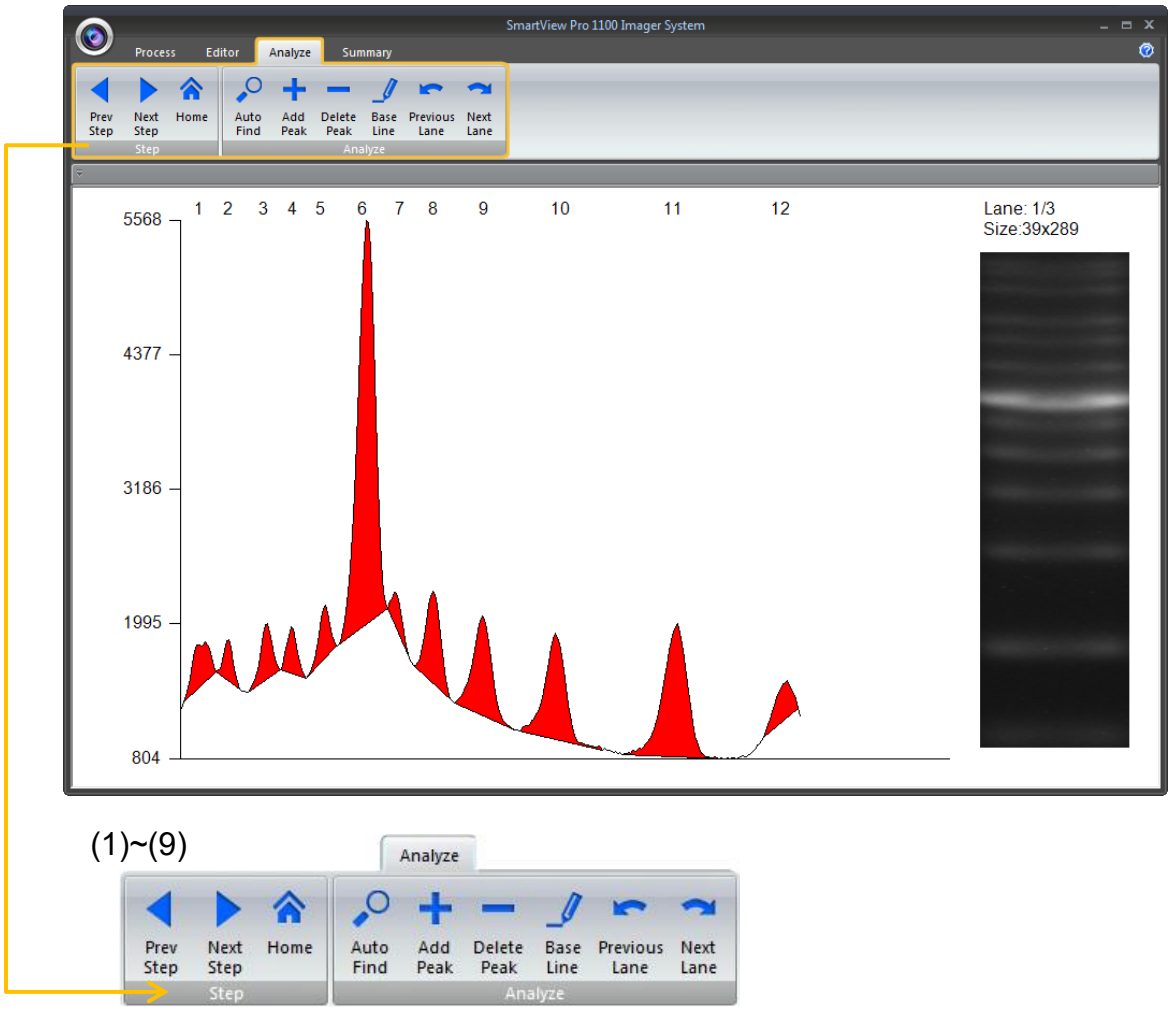
Add Lane: Add the lane to analysis.

4. 

Delete Lane: To cancel the lane.

Note: Be sure to add all lanes you wish to analyze before you proceed to the next step.

4.1.4 Analysis: Image Analyze Interface

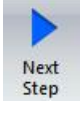


(1)~(9)

Step:

1. 

Previous Step: Return to previous step, current setting will be deleted.

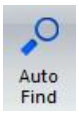
2. 

Next Step: Go to next step.

3. 

Home: Return to **Image Process Interface**.

Analyze:

4. 

Auto Find: Find the peaks automatically.

5. 

Add Peak: Add the peak manually.

6. 

Delete Peak: Delete the peak manually.

7. 

Base Line: Set the base line manually for selecting peaks.

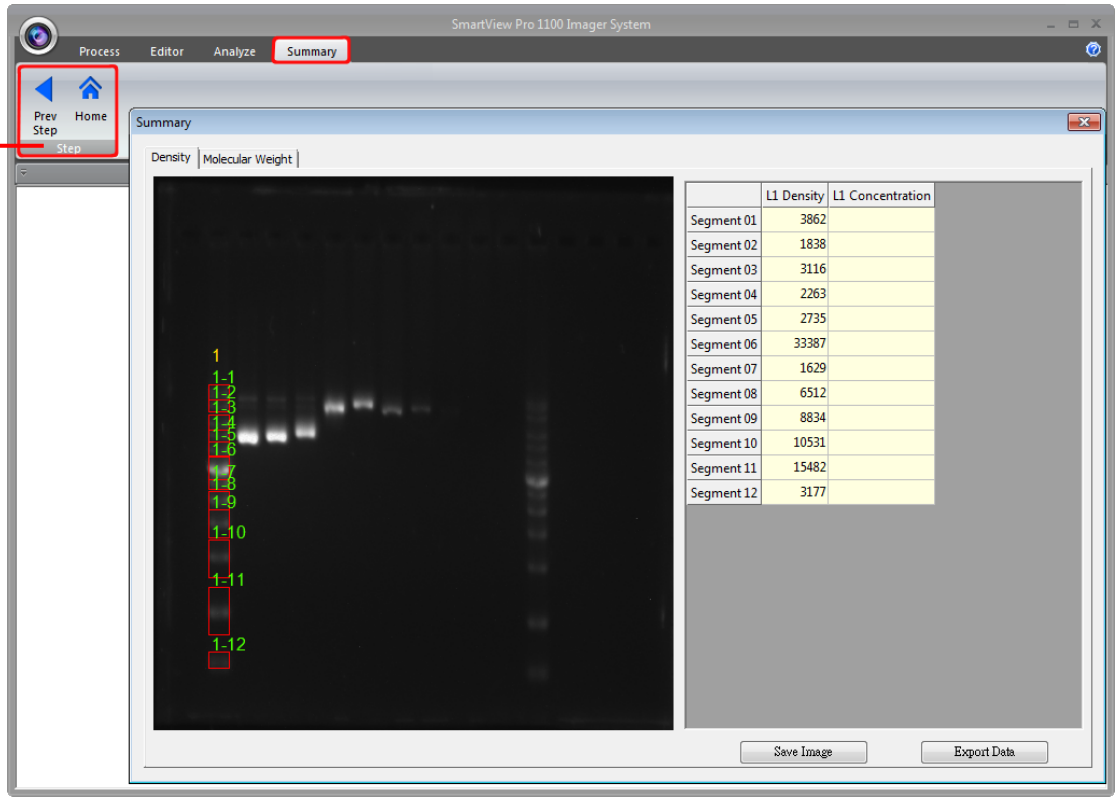
8. 

Previous Lane: Go back to last lane.

9. 

Next Lane: Go to next lane.

4.1.5 Analysis: Image summary Interface



(1)~(2)

Step:

1. 

Previous Step: Return to previous step, current setting will be deleted.

2. 

Home: Return to Image Process Interface.

4.2 Start the Operation

To have a better result when documenting with the blue light as lighting source, the recommended stain selection guide table is provided below, choose the appropriate dye to have the gel stained:

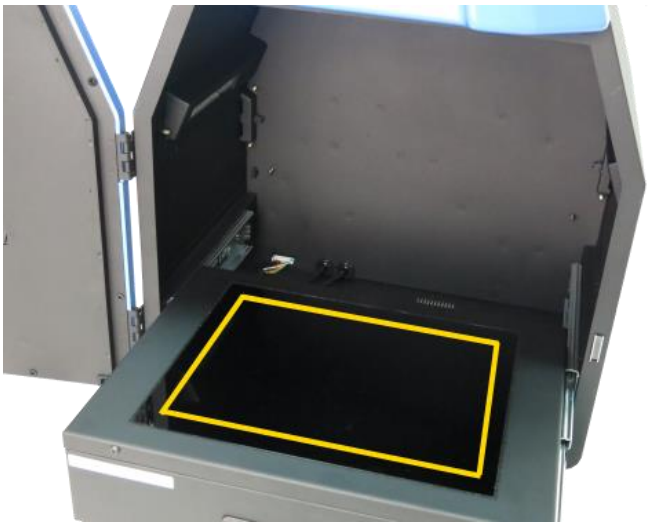
Nucleic Acid Stain	Performance	Experimental Protocol		
		Pre-staining	Post Staining	Sample Staining
SYBR® GREEN I (DNA)	Excellent	✓	✓	✓
SYBR® GREEN II (RNA)	Excellent		✓	✓
SYBR® Gold	Excellent	✓	✓	
Midori Green Direct	Excellent			✓
Hydra Green™ Safe DNA Dye	Excellent	✓	✓	
HD Green™ DNA Stain	Excellent	✓	✓	
Novel Juice	Excellent			✓
SafeView DNA Stain	Well	✓		
SYBR® Safe	Well	✓	✓	
Midori Green	Well	✓	✓	
Midori Green Advanced	Well	✓	✓	
GelGreen™	Well	✓	✓	
GelRed™	Well	✓	✓	
Ethidium Bromide	NR	✓	✓	
Serva DNA Stain Clear G	NR	✓	✓	
HealthView™	NR	✓		

Once the gel is ready, follow the steps below to operate the device and analyze your experiment result.

Note:
This selection guide serves as a reference only. For the best staining procedures and stain spectrums please refer to manufacturer's protocol/user guide.

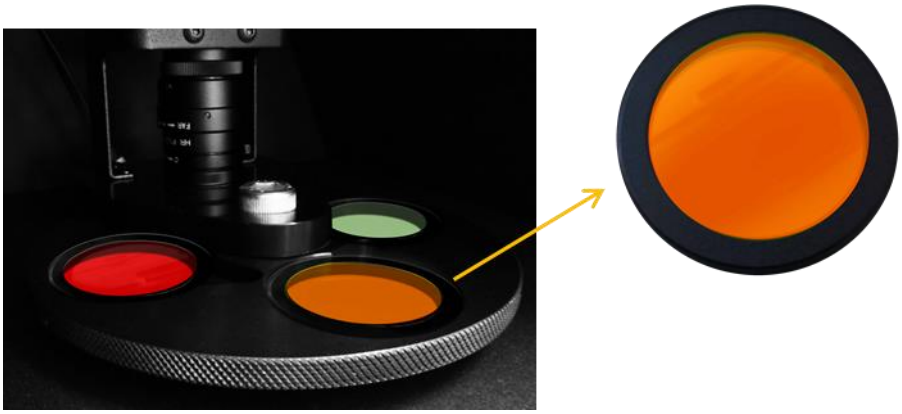
4.2.1 Positioning your gel

Place the gel onto the center of the UV Transilluminator.



4.2.2 Select the appropriate filter

Make sure you use the appropriate filter, the default type is optical EtBr filter. For different applications, please contact Major Science or your regional distributor for suitable filters.

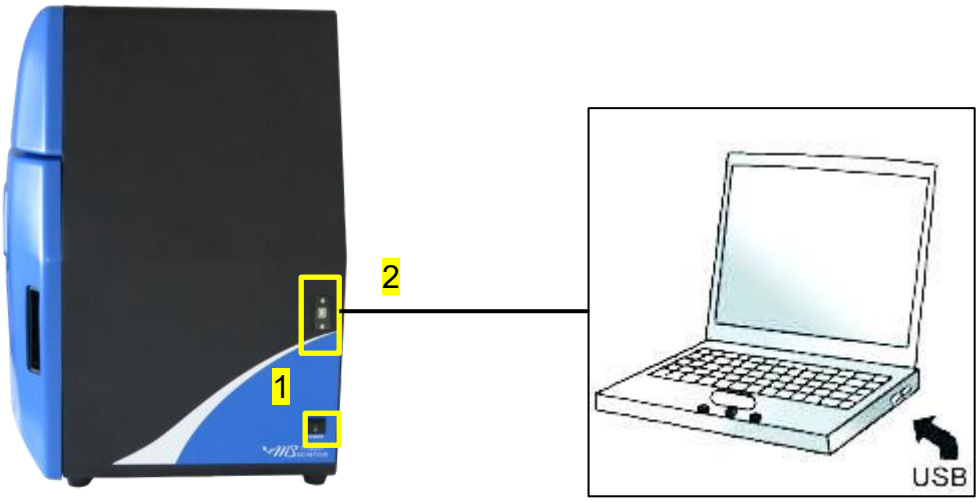


Note:

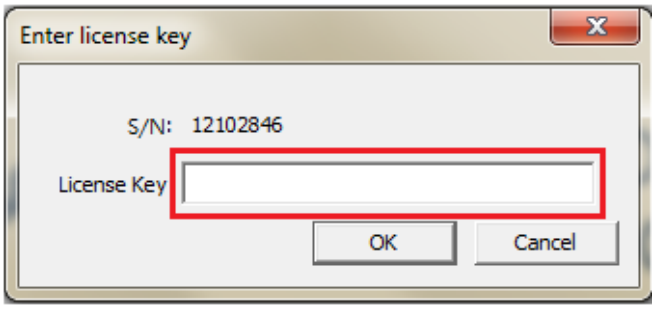
For use with UV light as activation source, optical filters should be used.

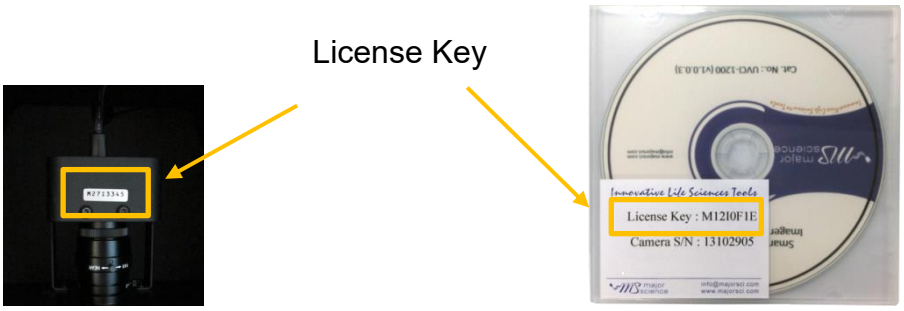
For use with blue light as activation source, amber filter should be used.

4.2.3 Turn on the power and connect the system with PC



1. Turn on the SmartView Pro Imager System
2. Connect the SmartView Pro Imager System with the computer by USB wire.
3. With the system turned on, double click the "SmartView Pro system" icon in order to key in the license key.

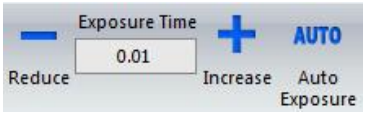




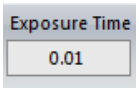
Note: The license key must match the camera serial number.

4.2.4 Adjust the setting for best imaging

1. For adjusting exposure time, refer to section 4.1.1: Time set.



Note:

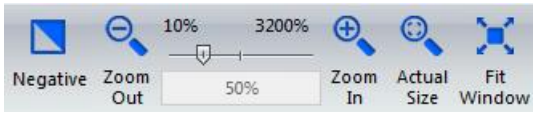
(1) Depending on the autoexposure setting, the system may take up to 30 seconds for the camera to process and calculate the best exposure time. The autoexposure time is capped at a maximum of 3 seconds to prevent the system from over-exposure. In the event that increased exposure time is required beyond 3 seconds, please manually insert a time in the 

frame or manually increase with the 

button.

(2) It is recommended not to set the exposure time above 5 seconds in normal usage. Overexposure tends to affect the clarity of image, in addition resulting in slight UV tubes exposed in the image.

2. For other screen interface description, refer to section 4.1.1: Function.



3. Select the most suitable light source for your application, please refer to section 4.2.5.
4. Adjust the lens Iris, please refer to section 4.2.6.
5. To adjust default setting, please refer to section 4.2.7.
6. To freeze Image view for capture / print, refer to section 4.2.8.
7. Acquire and save the image, refer to section 4.2.9.

4.2.5 Select the light source

1. Nucleic acid samples imaging (Agarose gel)

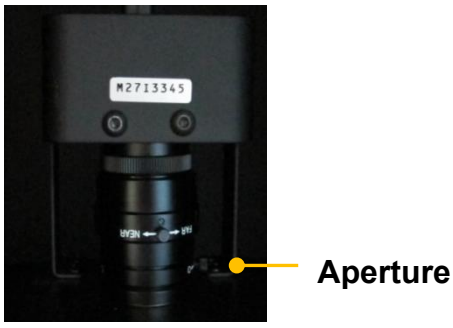
	You may use UV light for Nucleic acid DNA sample imaging.
	You can switch between **UV high (100%)** and **UV low (70%)** to get better signals.
	With environmental safe dye (such as Novel Juice and Midori Green Direct), you may use optional blue light module for less invasion to your DNA sample

2. Protein samples imaging (Protein gels such as Coomassie blue or silver stain; X-ray film)

	• You may use White Light or White Light Table for Protein sample imaging. • Turn the UV light off. • Turn the white light or optional white light table on. Your sample shall be observed under visible light.
	

4.2.6 Adjust the lens Iris

You may manually adjust the lens Iris to get the best saturation of image against exposure setting by looking at the display screen; however, this has been done in factory, only adjust the lens if necessary.

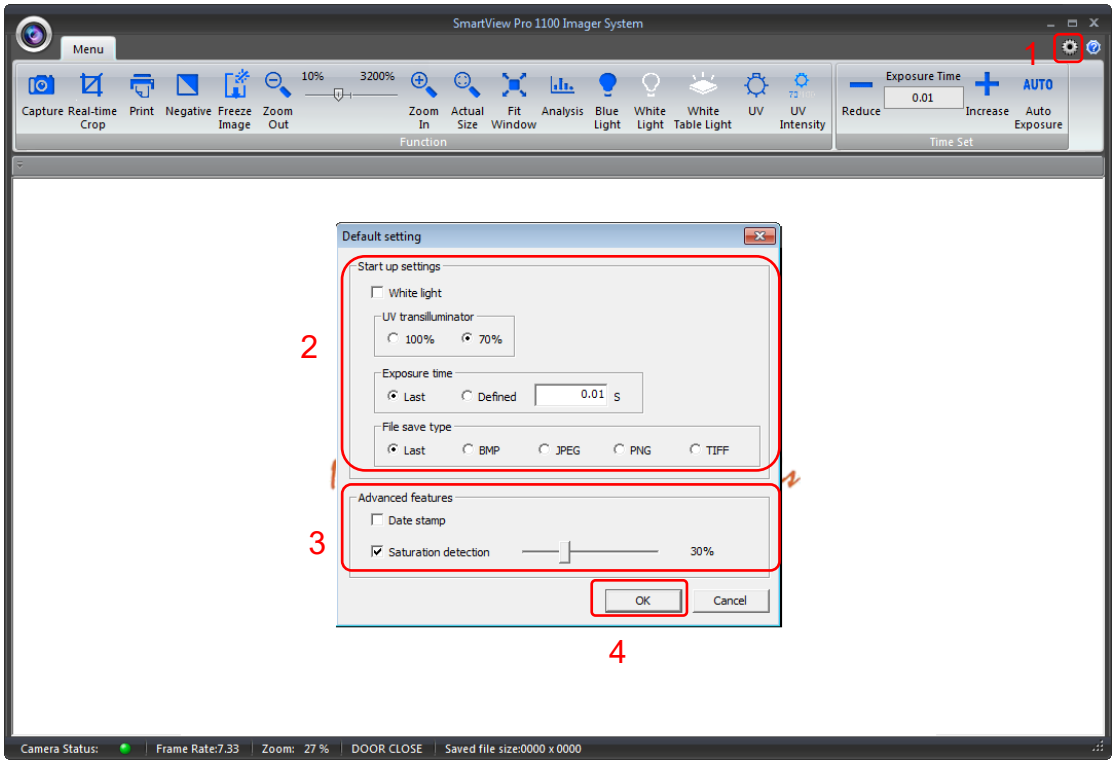


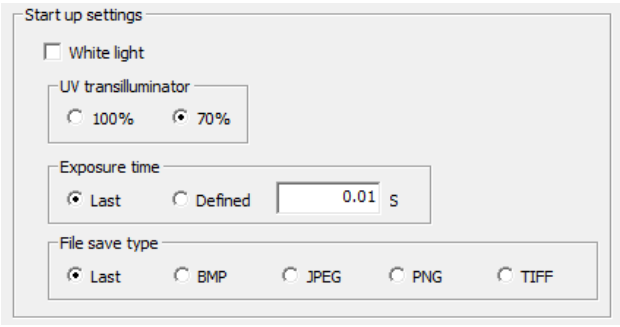
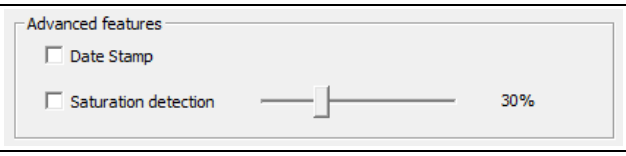
F1.2 – Close

Aperture Ring: A device that controls the amount of light admitted. Use the top ring for aperture adjustment, you may open up or close down to let in more or less light.

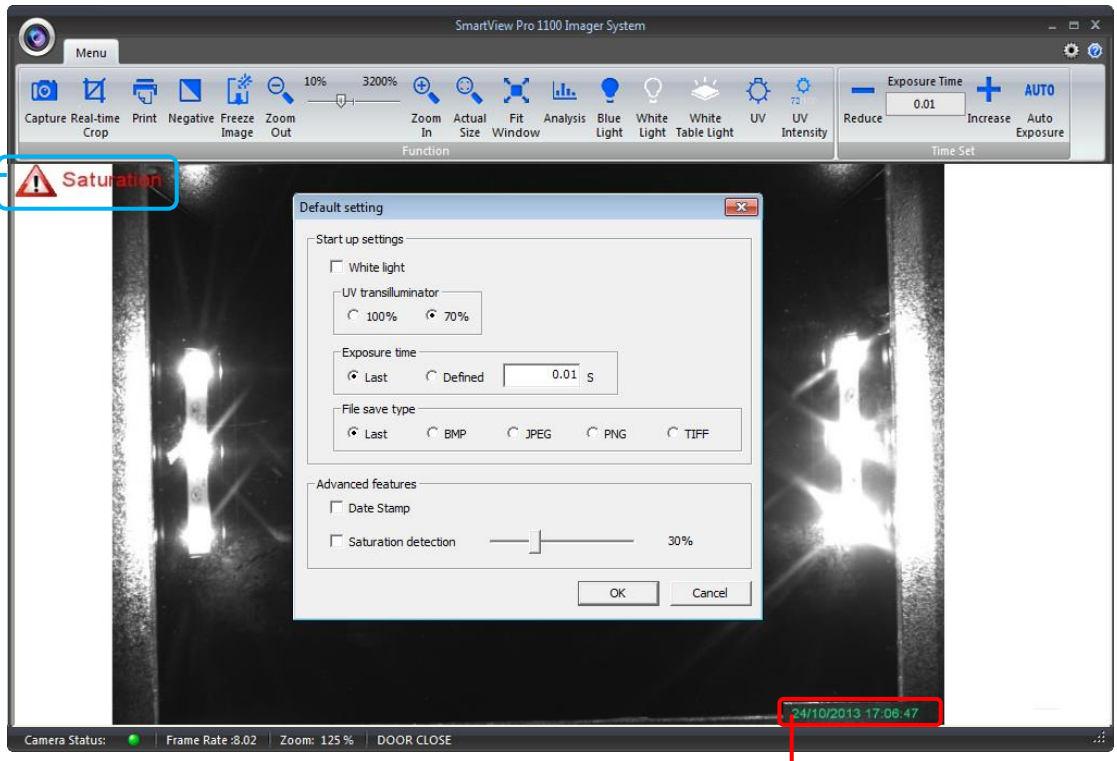
4.2.7 Default setting

The system allows the user to change the default settings by pressing the button (as box1). After setting up the parameters, "Start up settings" (as box 2) will come into effect once you restart the system and act as default permanently until you change it next time. However, "Advanced features" (as box 3) will only come into effect once you press the "OK" (as box 4) button, you will need to check on these features each time you need time.



Start up settings (box 2) : 1. White light 2. UV transilluminator 3. Exposure time 4. File save type	
Advanced features (box 3) : 1. Date stamp 2. Saturation detection	

Advanced features:



The display will show the Saturation warning if you enable the "saturation detection" from **Advanced features.** The image will adjust to saturation detect level you set.

The display will show the date stamp if you enable the "Date stamp" from **Advanced features.**

* Please note that the Saturation Detect function uses a considerable amount of memory. Depending on the specification of your computer, enabling this function may significantly reduce the smoothness of operation.

4.2.8 Freeze Image

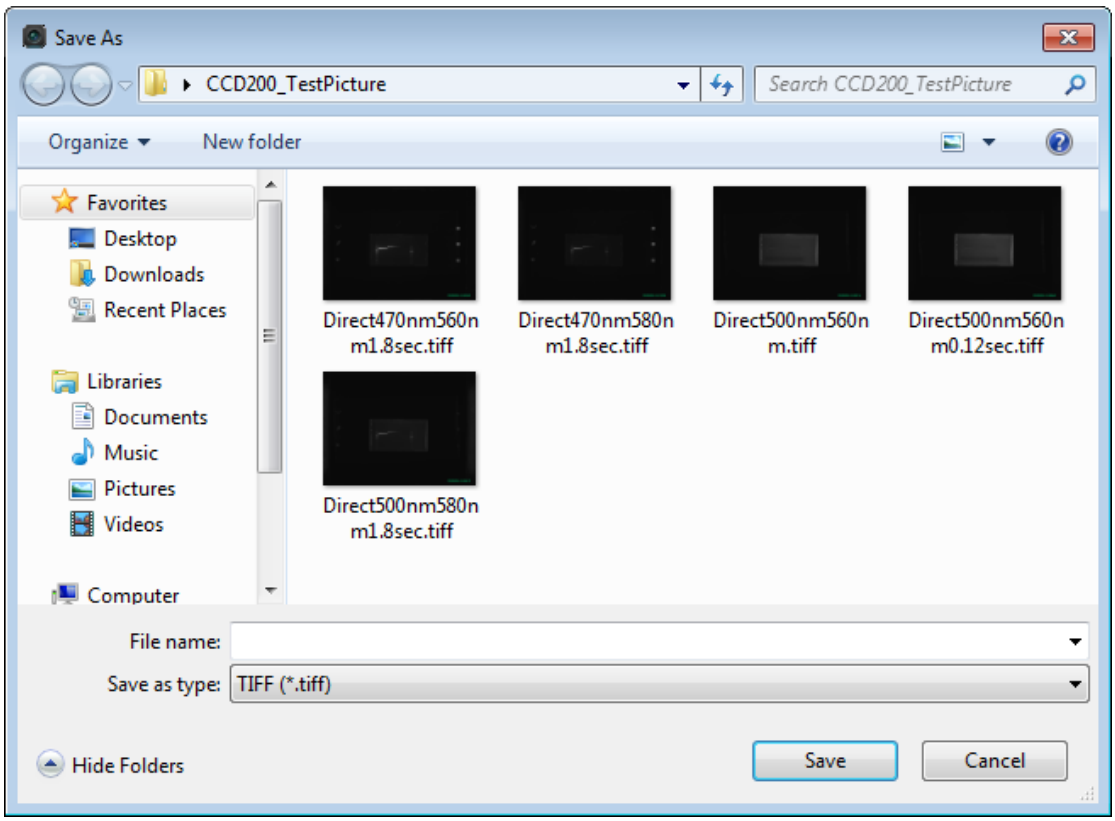
This button freezes your image. UV can be turned off immediately to prevent damage of DNA. And the image can be printed out and/or be captured/ saved.

4.2.9 Acquire and save the image

To capture the image, click on the "Capture" button then a dialog will pop up to save the image. Select the image file format you desire and choose the data location and give a file name.

To capture an image with the real-time crop function, click on the "Real-time Crop" button, then draw an area frame by dragging the cursor on the image. Once you've selected the area you want, click the "Capture" button to save the cropped area.

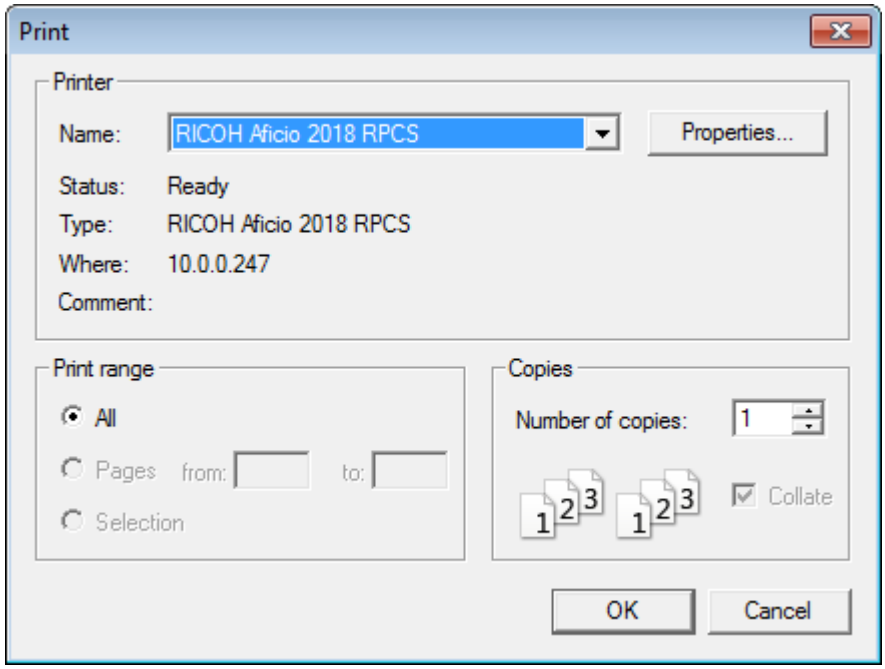
Image format: bmp / jpeg / png / tiff



Note: Default format of saved images can be changed according to your preference in the "Default setting". (please refer to 4.2.7 for more details).

4.2.10 Print the image

You can use the printer to print your image. Simply press the "Print" button then your image will be printed out.

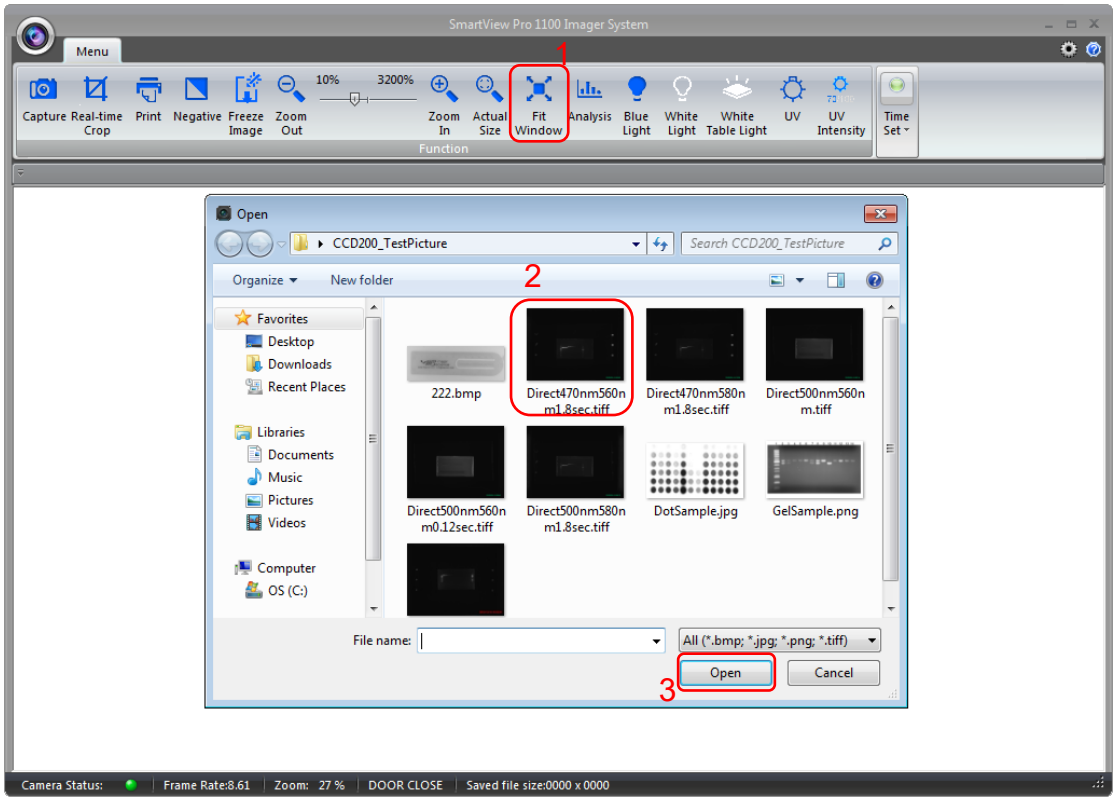


4.3 Image Analysis: Using “Gel Positive/Gel Negative” to analyze the sample

4.3.1 Load the image

To start the image analysis, first you will have to choose your image from the data file.

Step1 Press “Analysis” (as box 1) to select your image. You can download the image file from the hard drive or the USB drive. Select an image from the folder (as box 2). Press “Open” (as box 3) to load.

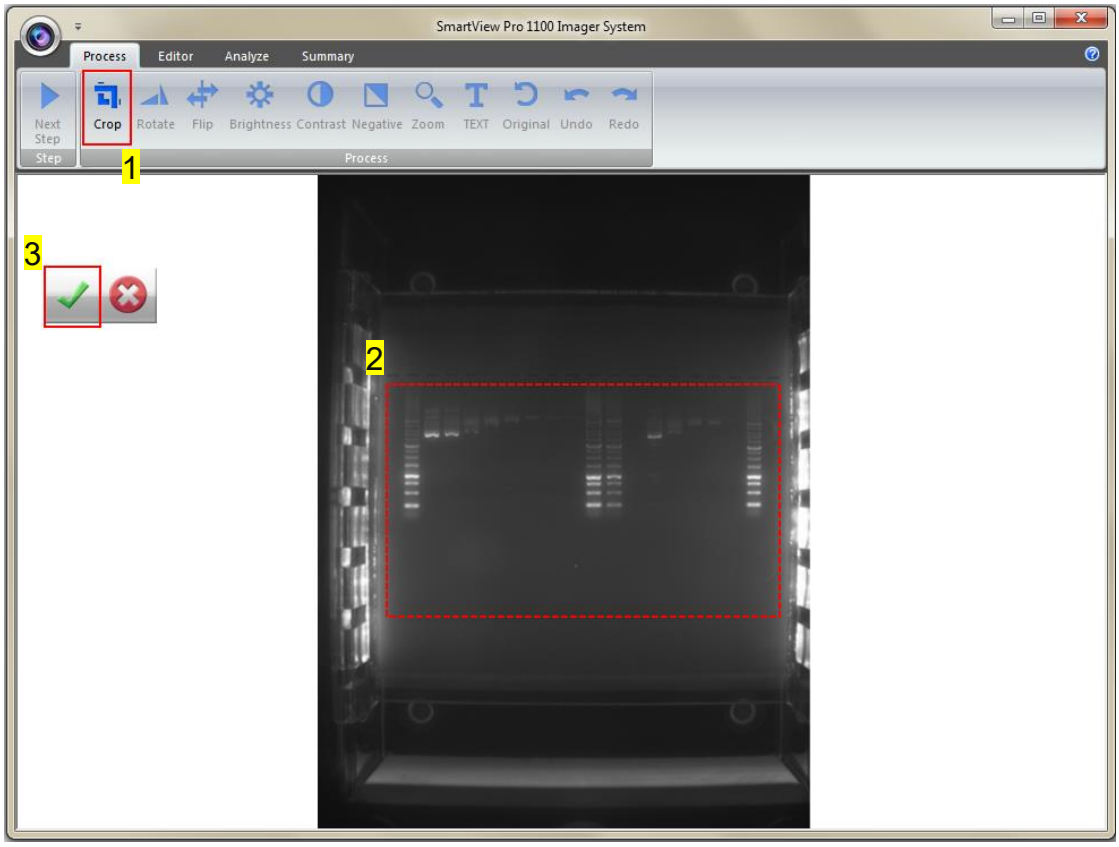


Step2 The image will be shown on the center of a new window.

4.3.2 Processing the Image File

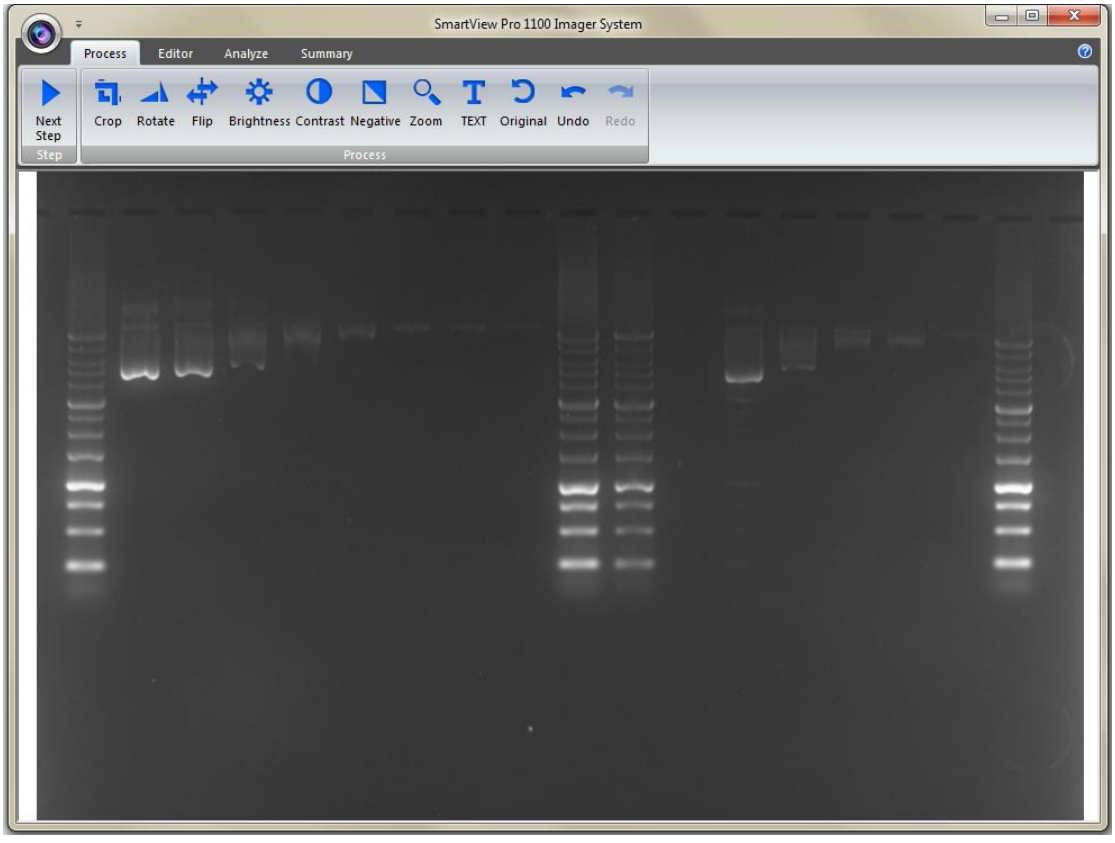
You will be directed to the image processing tool box as shown below.

Step1 Crop: Crop the image by press the "Crop" button (as box 1). In order to select the cropping area of the image, hold and drag the cursor to select the area you want (as box 2). Once you are done. Press "✓" (as box 3) button to confirm or press "x" to cancel.



Step1-1 The image will be shown below as you selected.

*** Remember:** Always rotate the image before you crop!



Step2 Rotate: To rotate the image, first select the "Rotate" button (as box 1) then the toolbar (as box 2) will pop up.

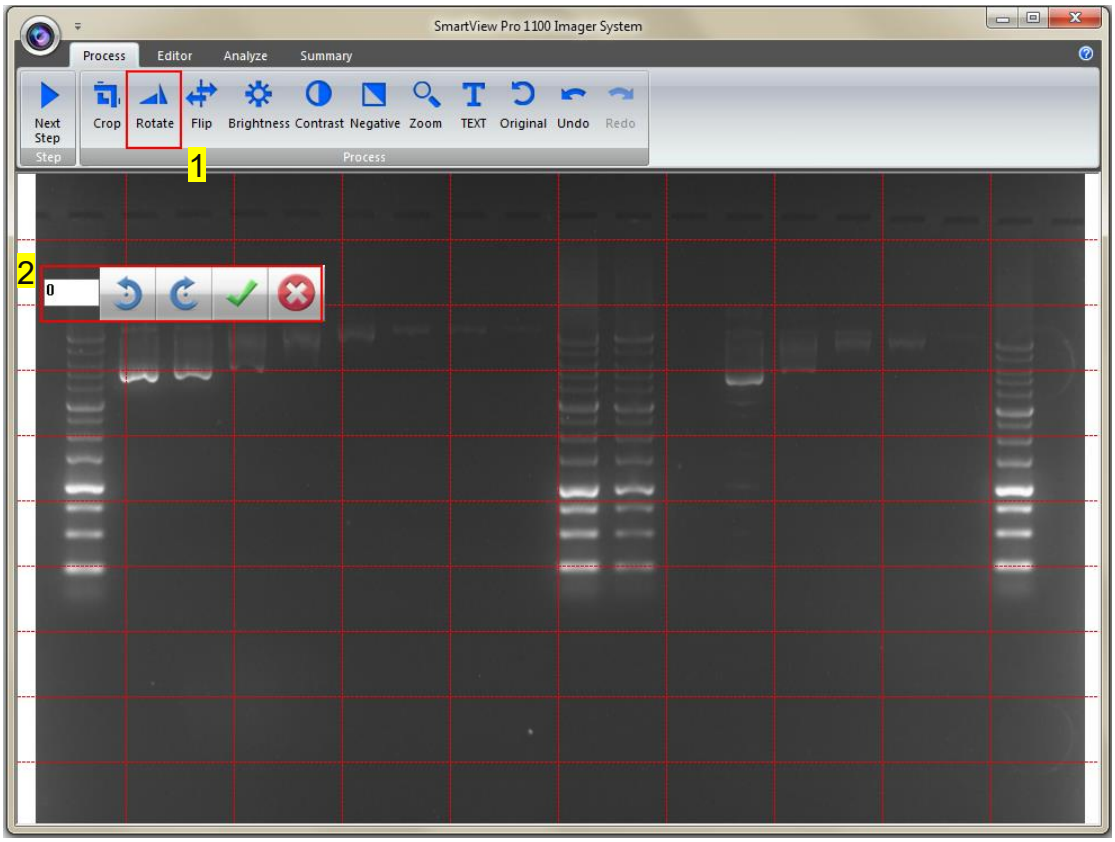
Toolbar:

a.  : Rotate counter-clock wise

b.  : Rotate clock wise

c.  : Confirm action

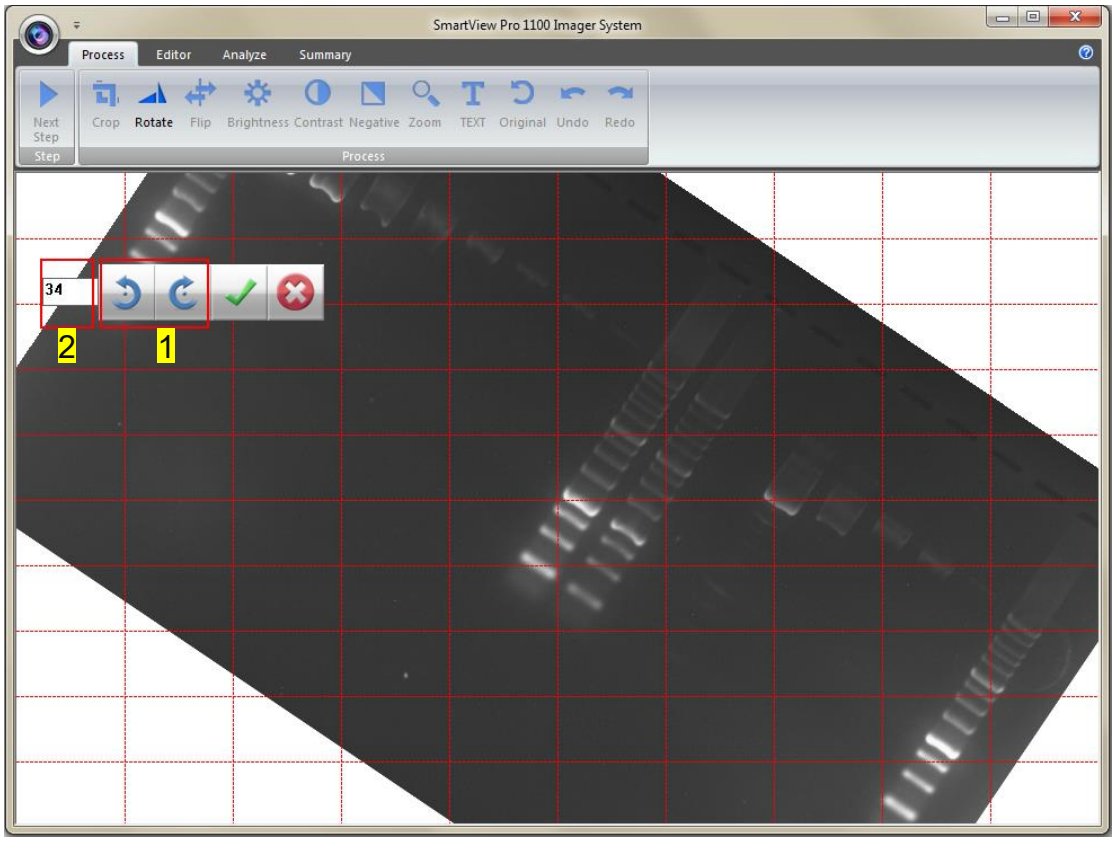
d.  : Cancel



Step2-1 You may rotate the image counter-clock wise or clock wise in two ways:

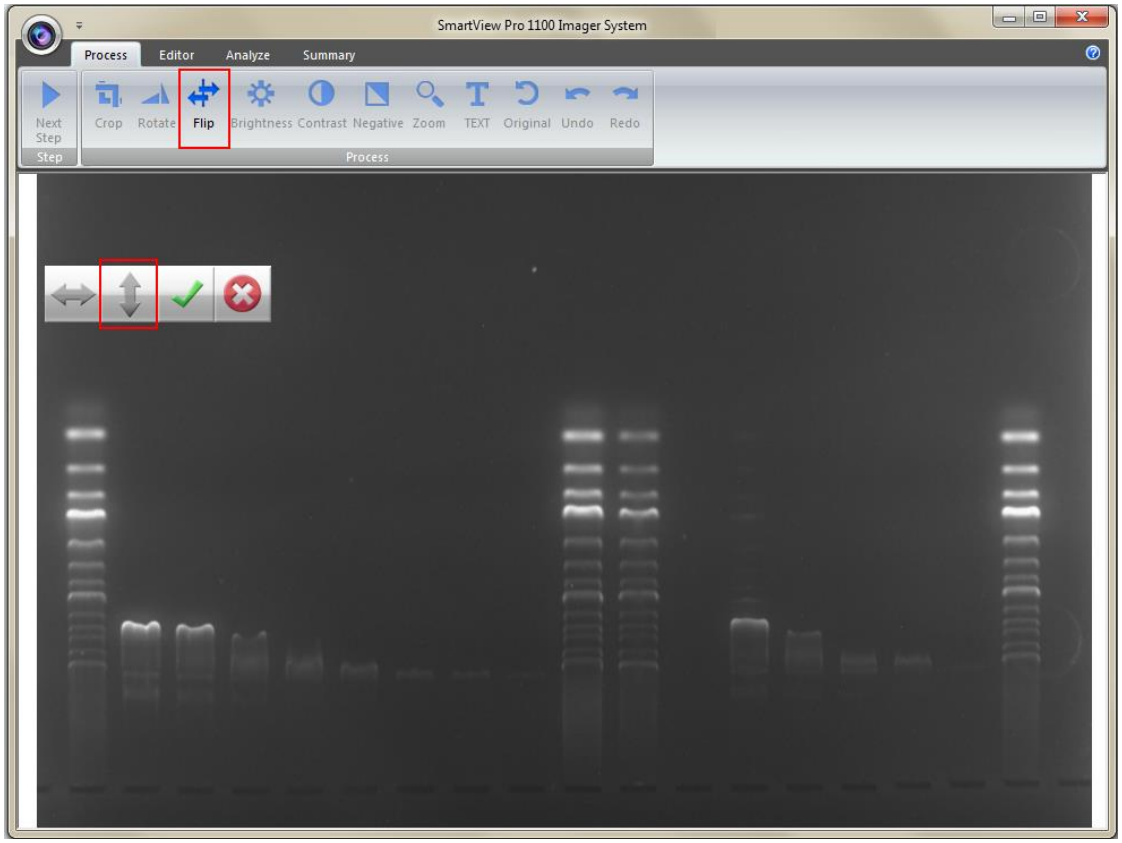
a. Using the toolbar labelled as box 1, press "✓" to confirm action.

b. Input the desired angle (0~359) directly in the blank space labelled as box 2, press **ENTER** first before pressing "✓" to confirm action.



Step3 Flip: To flip the image according to the orientation you desired.

a.  : Invert the image upside down.



b.  : Invert the image from left to right.

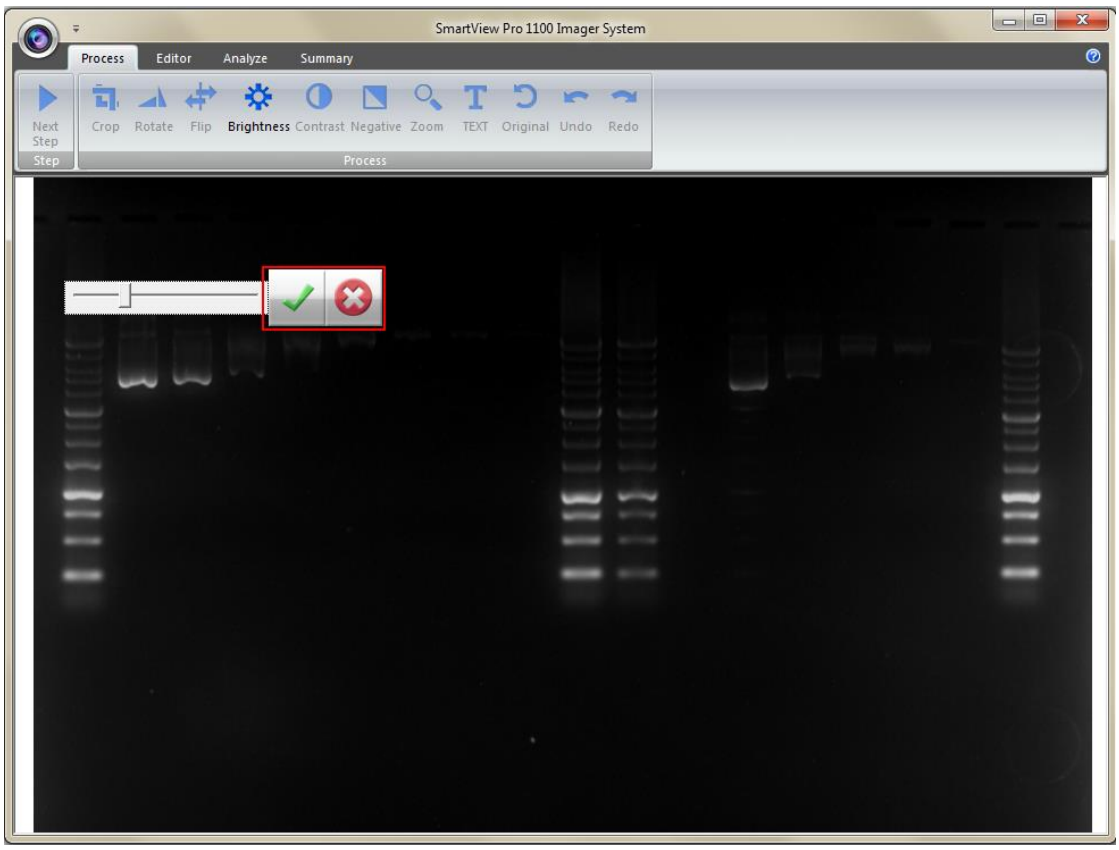
c.  : Confirm action d.  : Cancel

Step4 Brightness: Adjusting the brightness of the image by pressing on the "Brightness" button (as box 1), then use the scrollbar (as box 2) to adjust the brightness level.

a.  : Low – High

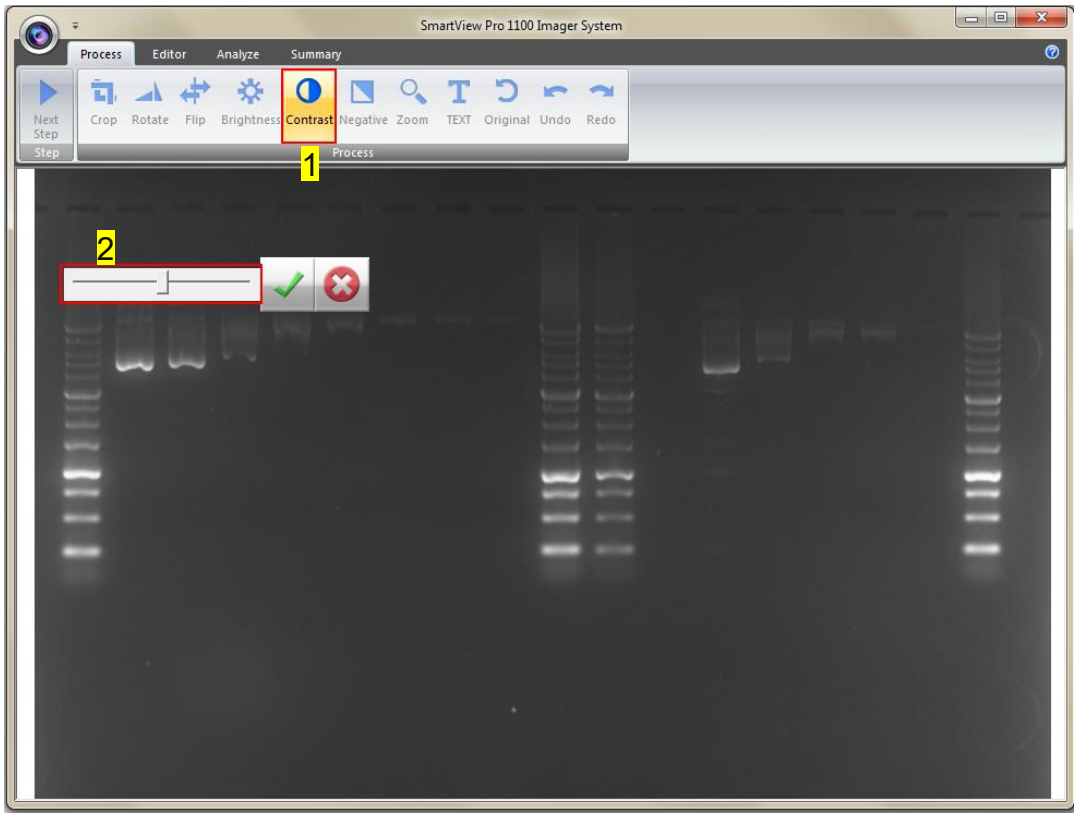
Step4-1 The result of Brightness is shown below. Press "✓" to proceed or press "X" to cancel.

b.  : Confirm action c.  : Cancel



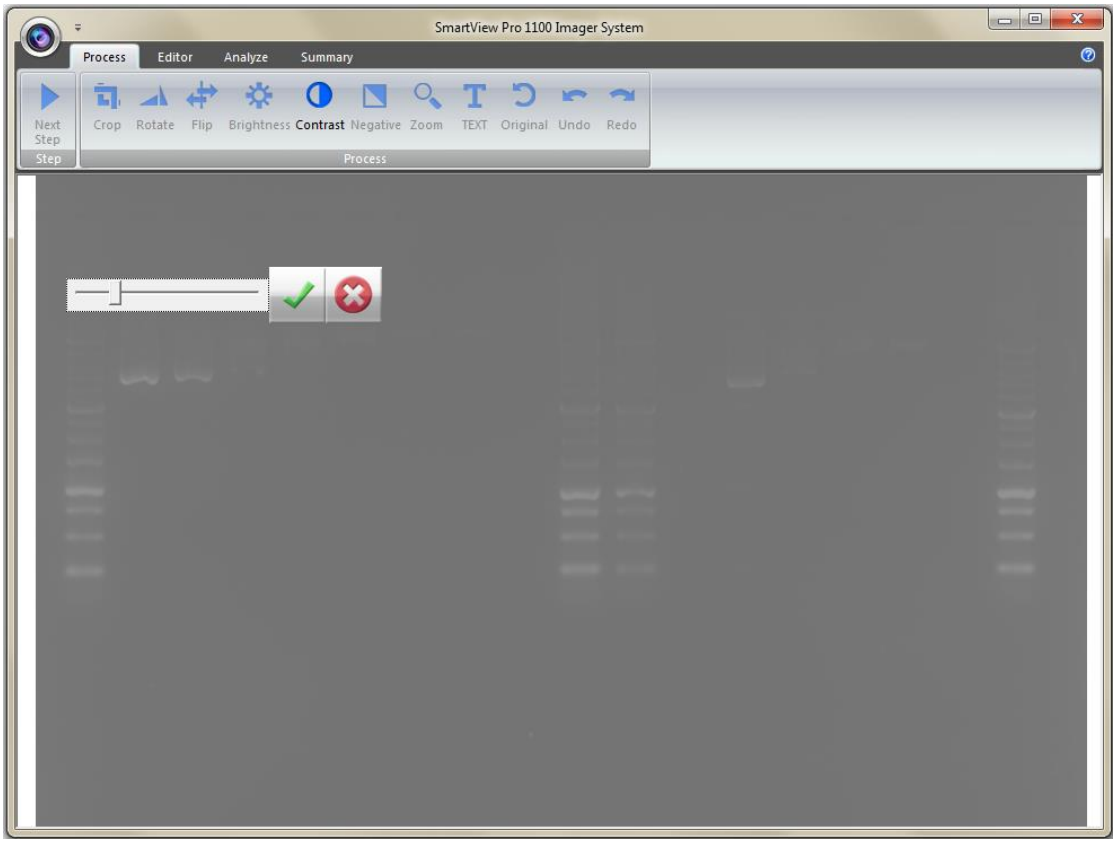
Step5 Contrast: Adjusting the contrast level of the image by pressing the "Contrast" button (as box 1), then use the scrollbar (as box 2) to adjust the contrast level.

a.  : Low – High



Step5-1 The result of Contrast is shown below. Press "✓" to proceed or press "X" to cancel.

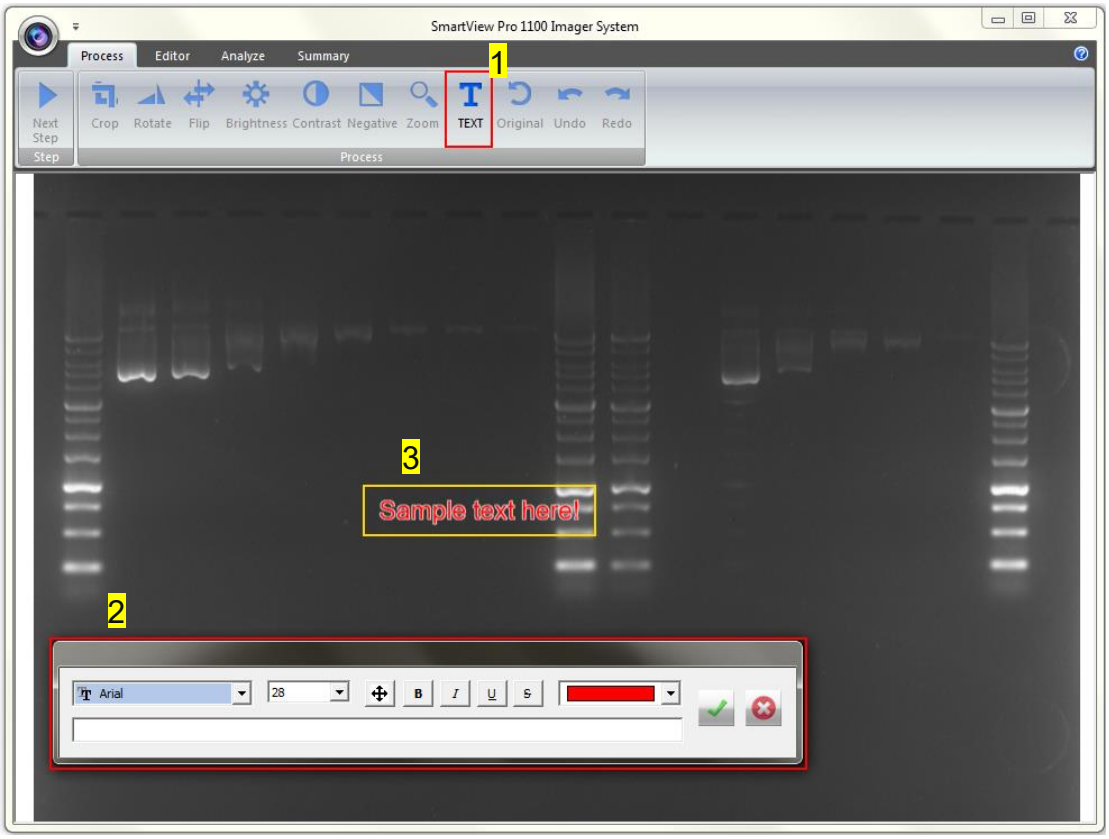
b. : Confirm action c. : Cancel



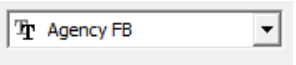
Step6 Negative: To reverse the image between black and white by pressing on the "Negative" button (as box 1). If you don't want to negative the image, you can press the "Negative" button again or you can press the "Undo" button (as box 2) to recover the image.

Step7 Zoom: Adjusting the zoom of the image by pressing on the "Zoom" button (as box 1) and then a toolbar will pop out. If you want to zoom in the image, press the "+" button (as box 2). If you want to zoom out the image, press the "-" button (as box 2). Press "EXIT" to finish. This feature simply lets you zoom in and zoom out of the image but will not make any changes to the image file.

Step8 Text: You could add any text onto the image. Click on the "Text" button (as box 1) and then the toolbar (as box 2) will show up. The sample text (as box 3) will show on middle of the screen.



Step8-1 Click on the input box, type in your text here. You could adjust your text using this toolbar. The toolbar functions are explained as below.

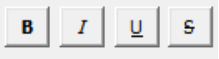
a. 

: Change the font type

b. 

: Change the font size.

c.  : Move the text to the desired location by moving the mouse cursor to the desired location on the image and click the left button of the mouse.

d. 

: Change the font properties.

e. 
: Change the color of the font.

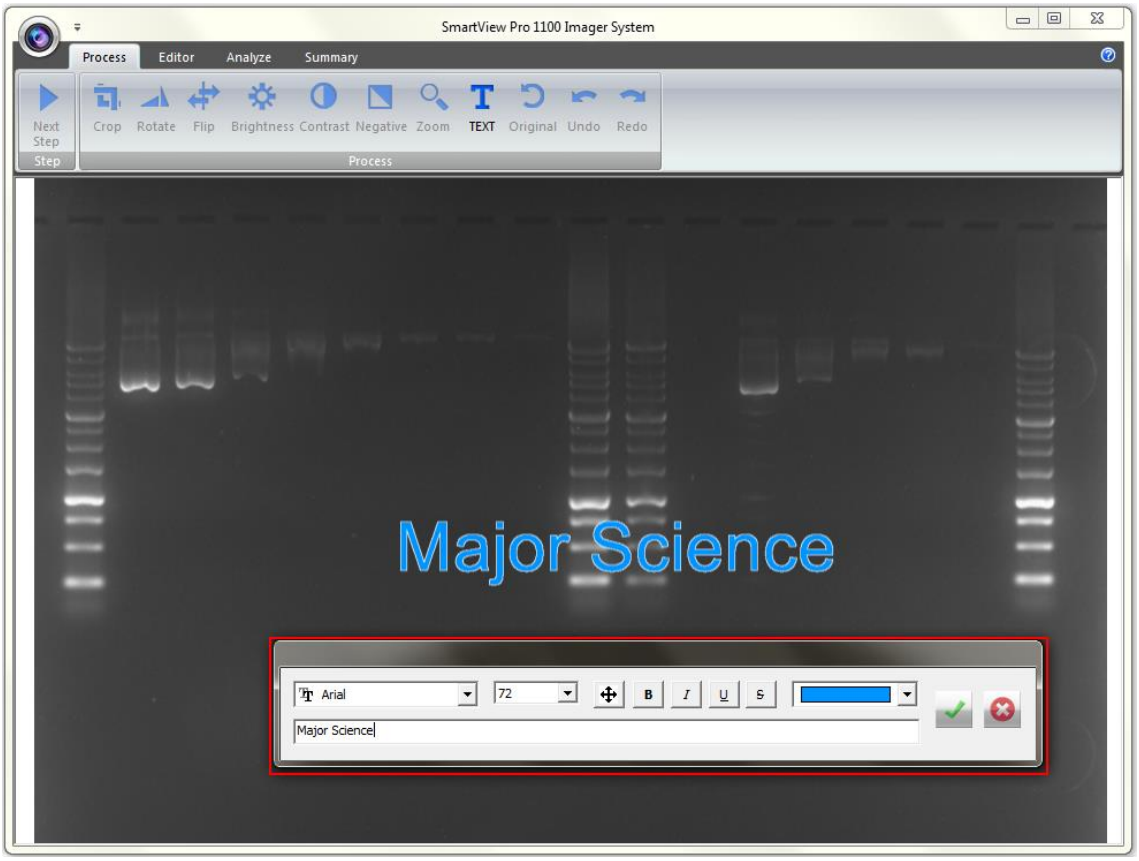
f. 

Input box: Type in your text here, press **ENTER** first before pressing "✓" to confirm action.

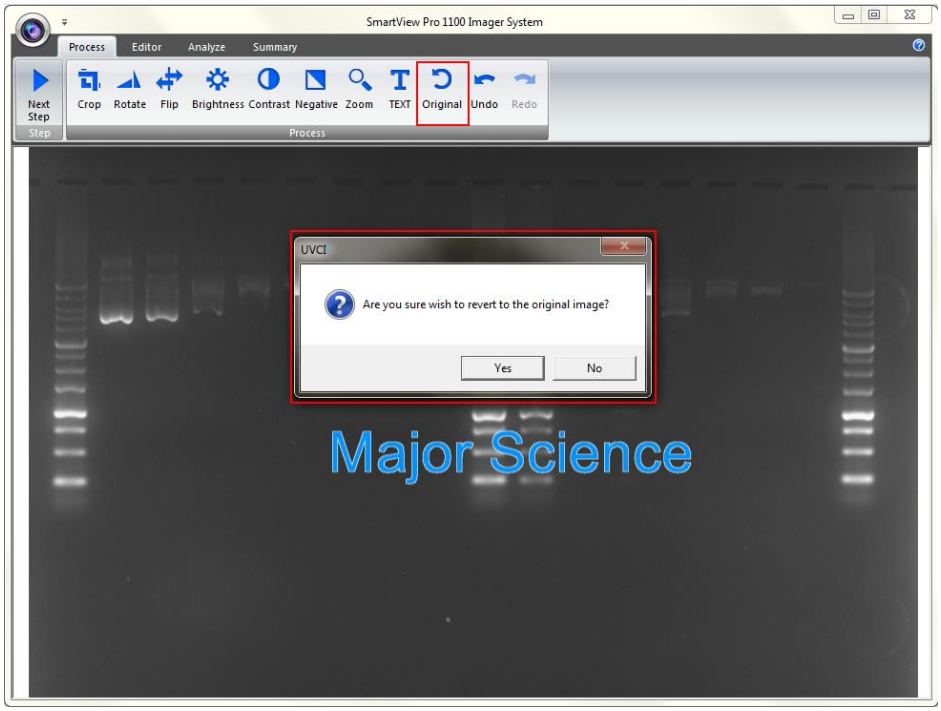
g.  : Confirm action

h.  : Cancel

Note: 1. To add another set of text, please press "TEXT" again.
2. To remove a text, please use "Undo".



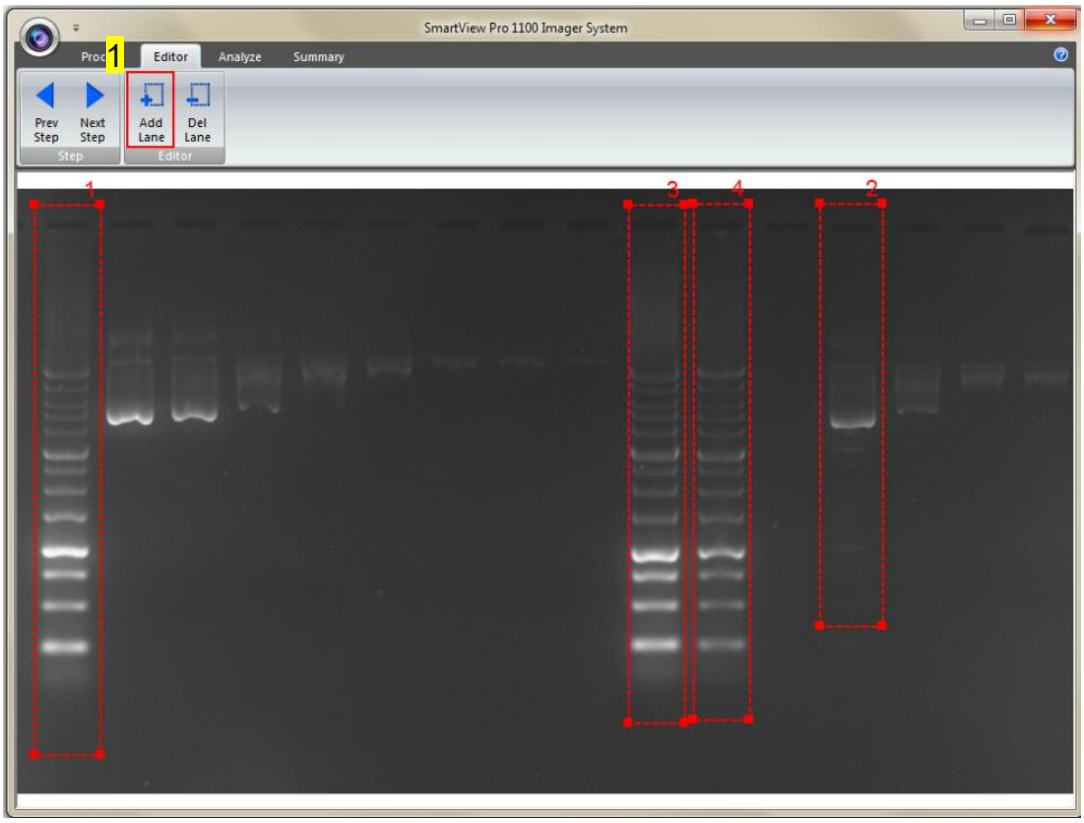
Step9 Original: This is the master undo button. It will undo ALL the changes you made to the image and revert it back to the original image. A massage will pop up to ask for confirmation once you press the "Original" button. Press "Yes" to proceed.



Step10 Next Step: Press "Next Step" button (as box1) to continue the analysis. There are 4 analysis methods for you to choose depending on your application. For example here, we choose "Gel Negative" (as box 2) for DNA gel electrophoresis. (This instruction for operating under Gel Positive and Gel Negative is the same)

4.3.3 Selecting the Image Lane

Step1 Add Lane: Selecting your lane by creating a long rectangular box along the lane. Press "Add Lane" button (as box 1) and then hold and drag the rectangular box to the area you want. Each time you press "Add Lane" button, the system will duplicate an exact box as your previous box. You may move the box once the "✣" cursor is appeared, hold and drag the box to the appropriate location.

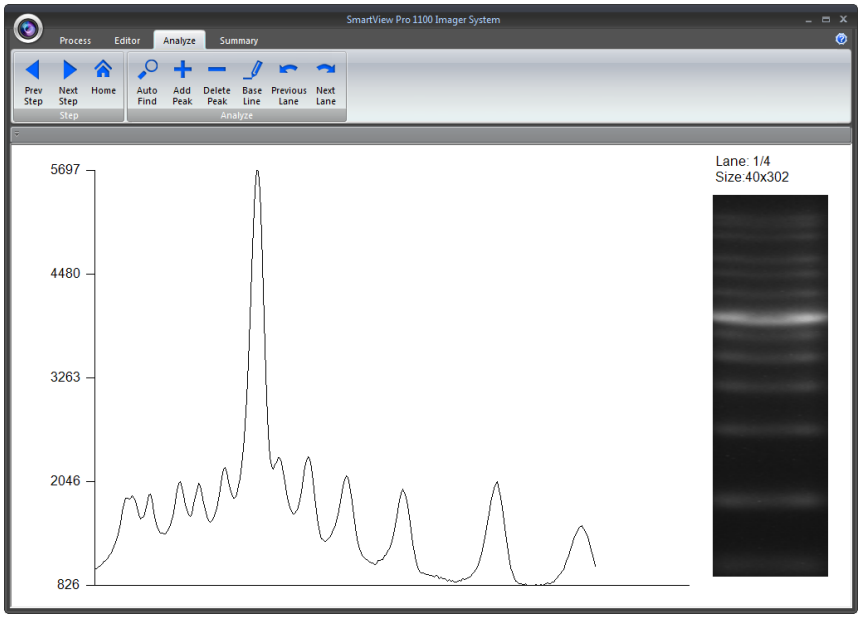


Step2 Delete Lane: Press "Del Lane" button (as box 1), and then click the center of rectangular box you want to delete. After selecting all lanes, click "Next Step" button (as box 2) to move forward.

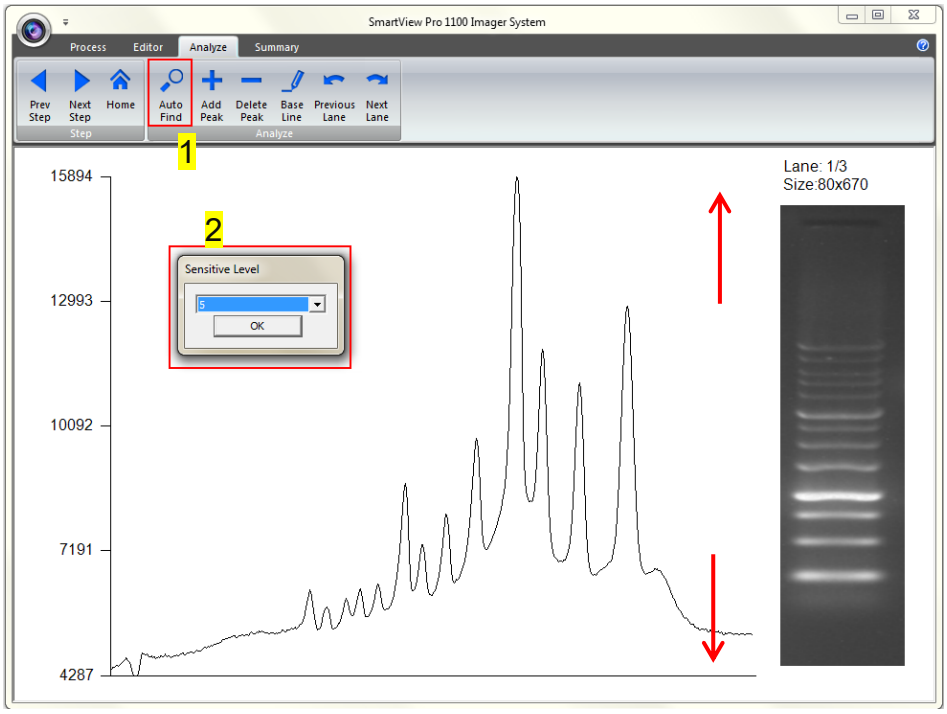
Note: Make sure your bands are straight and enclosed inside the rectangular box. You must choose at least one lane in order for the analysis software to proceed.

4.3.4 Lane Analysis

The analysis software will analyze the bands inside the lane to create a histogram.

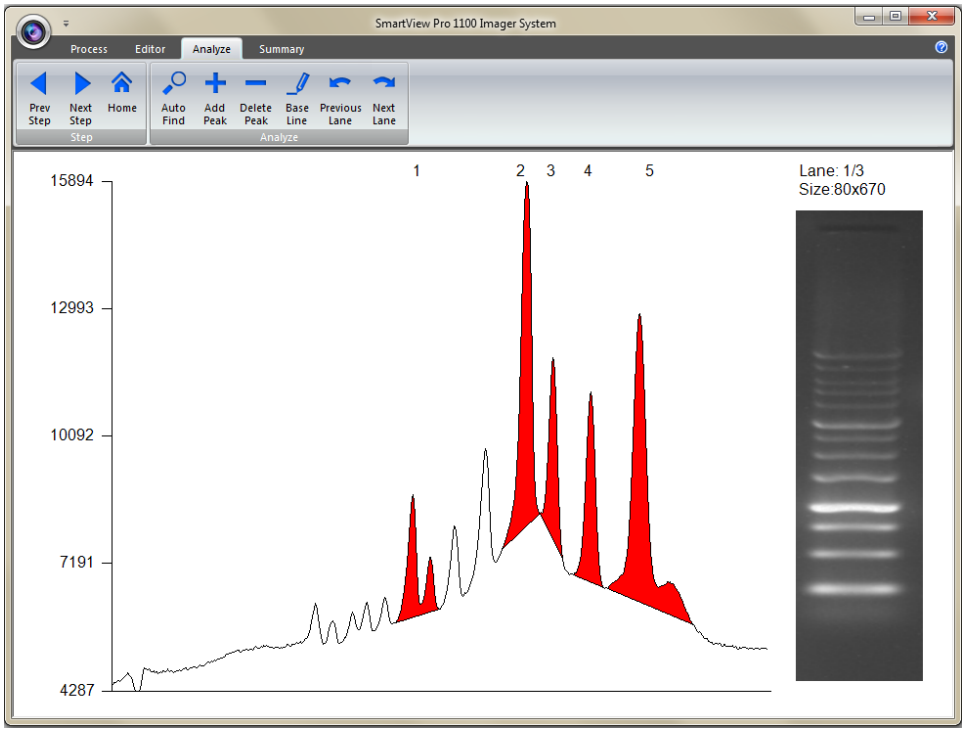


Step1 Auto Find: Click on the "Auto Find" button (as box 1), the software will allow you to adjust the sensitivity level according to your needs. Sensitivity level (as box 2) is ranged from 1 to 10. Select a number appropriate to your image. The smaller the number, the lower the sensitive degree. The larger the value, the higher the sensitive degree.

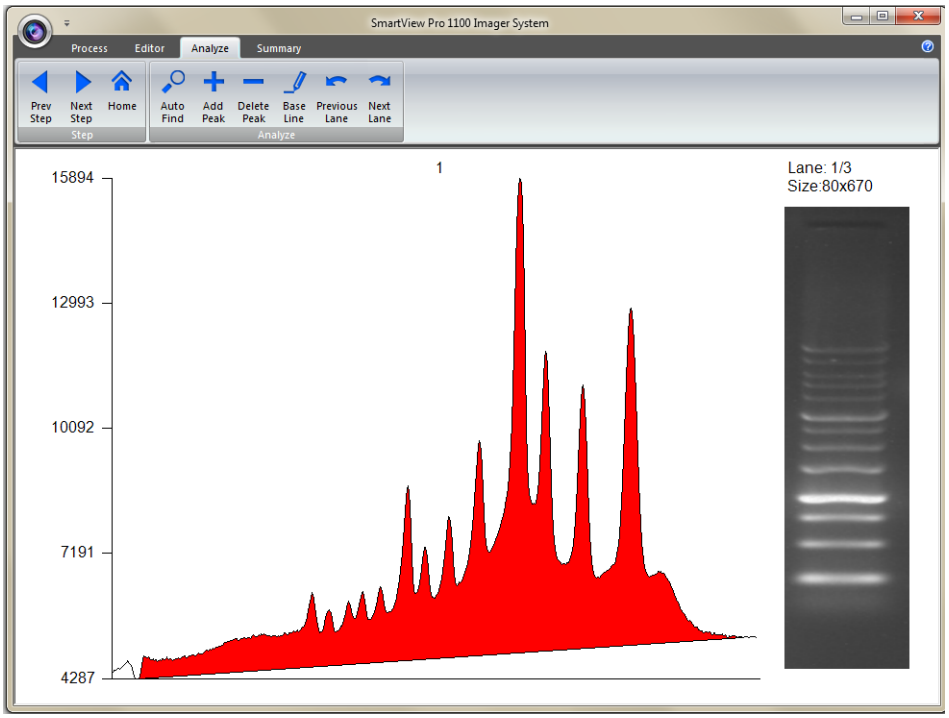


Step1-1 Any peaks above your adjusted sensitivity level will turn "RED".

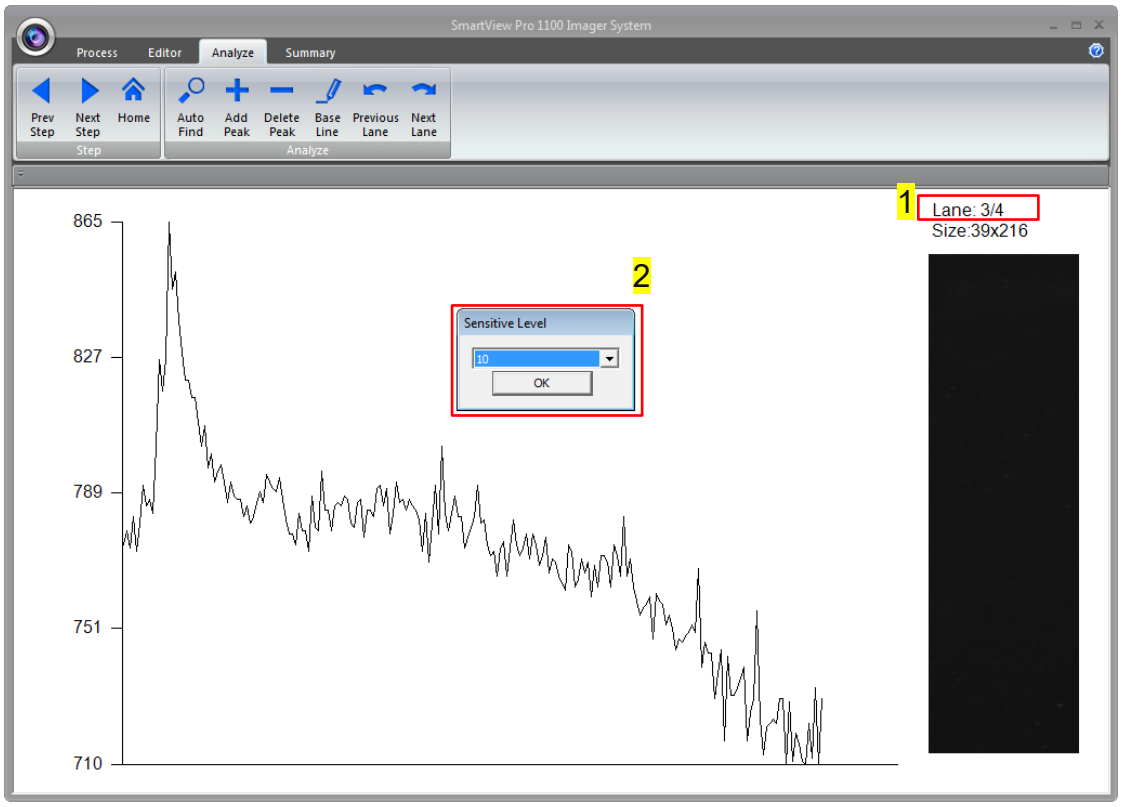
Example A: Sensitivity level 1



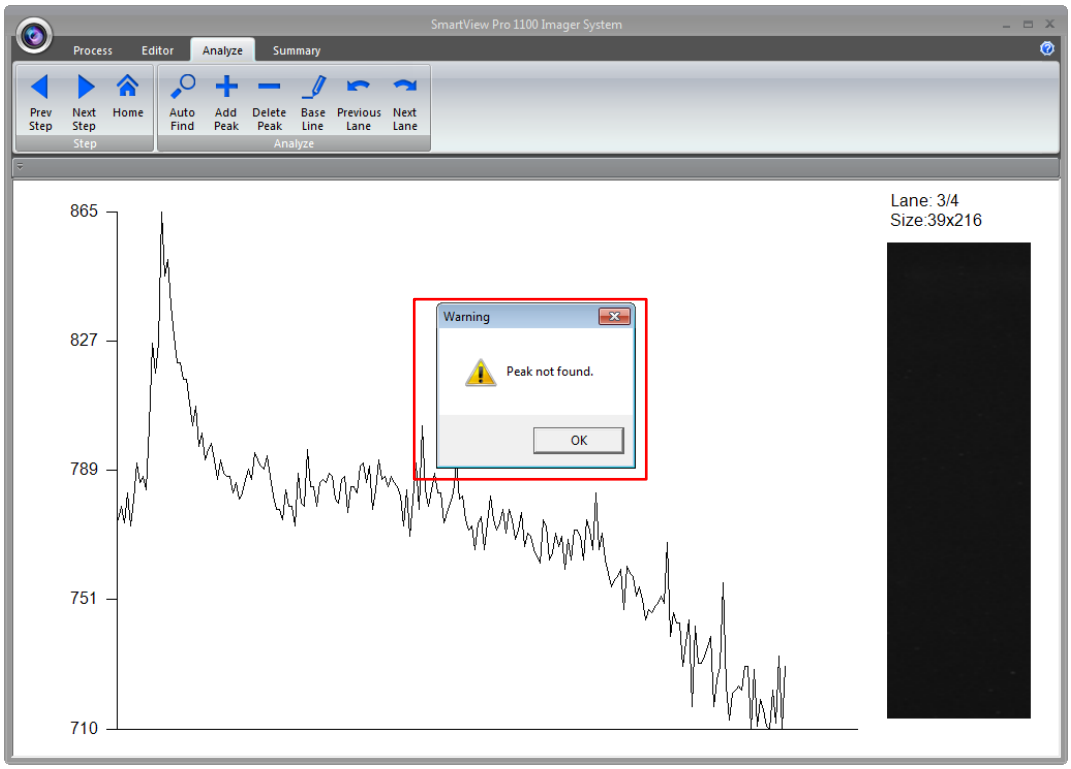
Example B: Sensitivity level 10



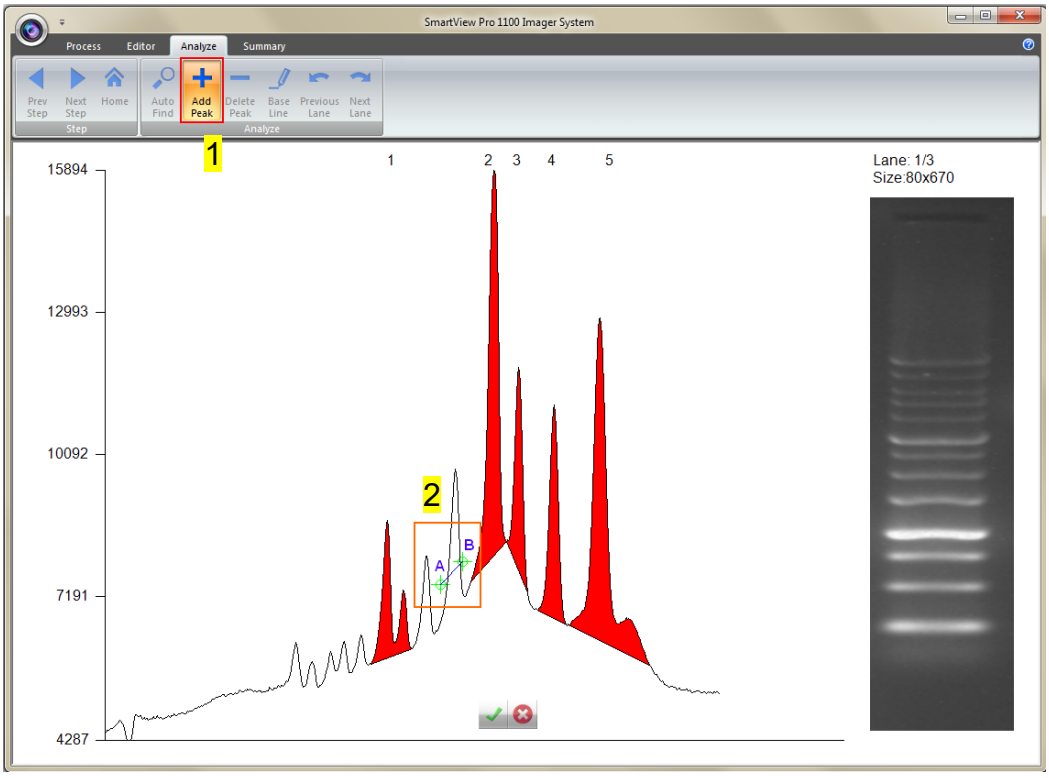
Step1-2 If the density of band (as box 1) is not clear, the Auto Find (as box 2) function cannot find any peaks.



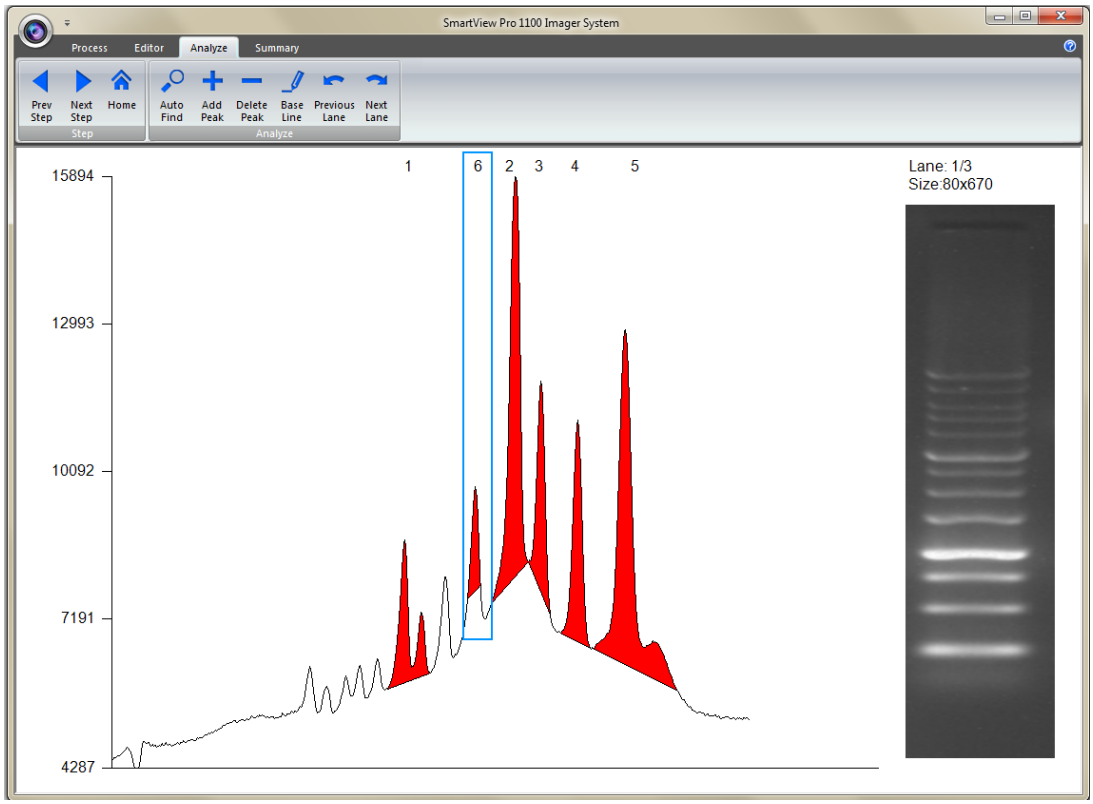
Step1-3 The warning dialog will pop up on the screen.



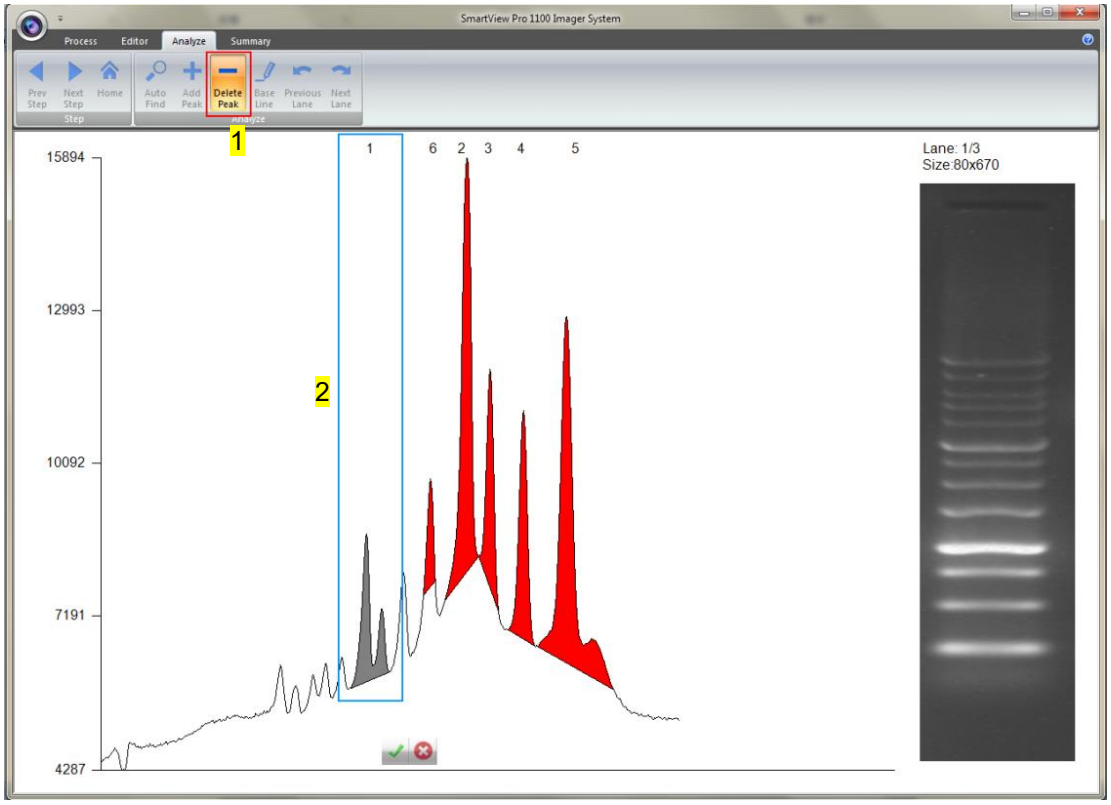
Step2 Add Peak: Click "Add Peak" button (as box 1), choose two points which covers the range of the peak from the screen (select one point from the left side and a second point from the right side of the desired peak) to add a peak (as box 2) and then click the "✓".



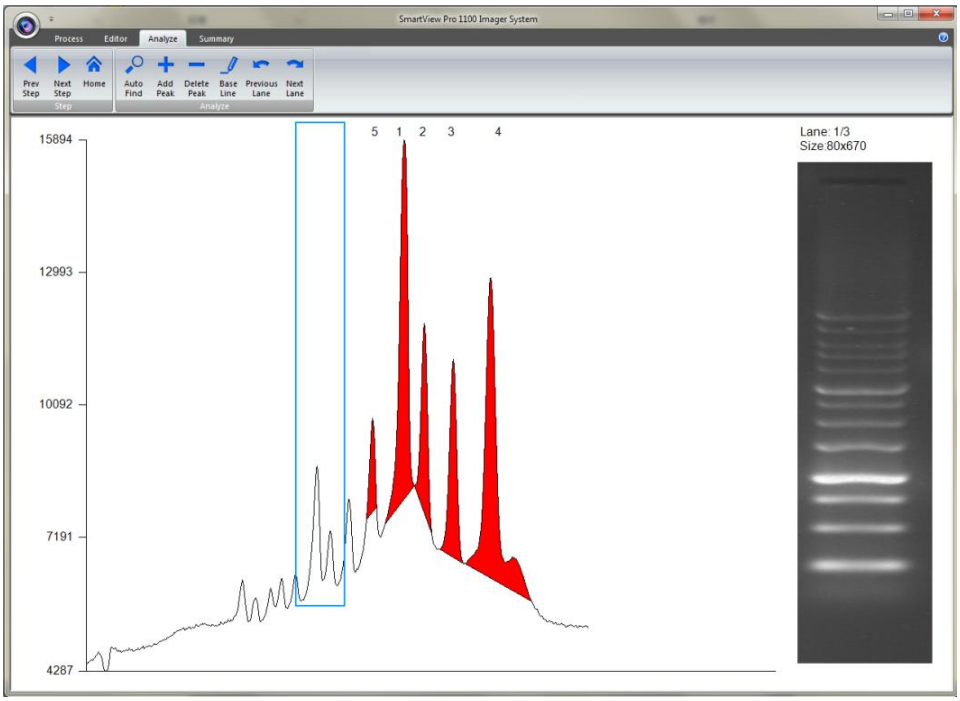
Step2-1 The peak will turn "RED". The new peak number is 6 (shown below).



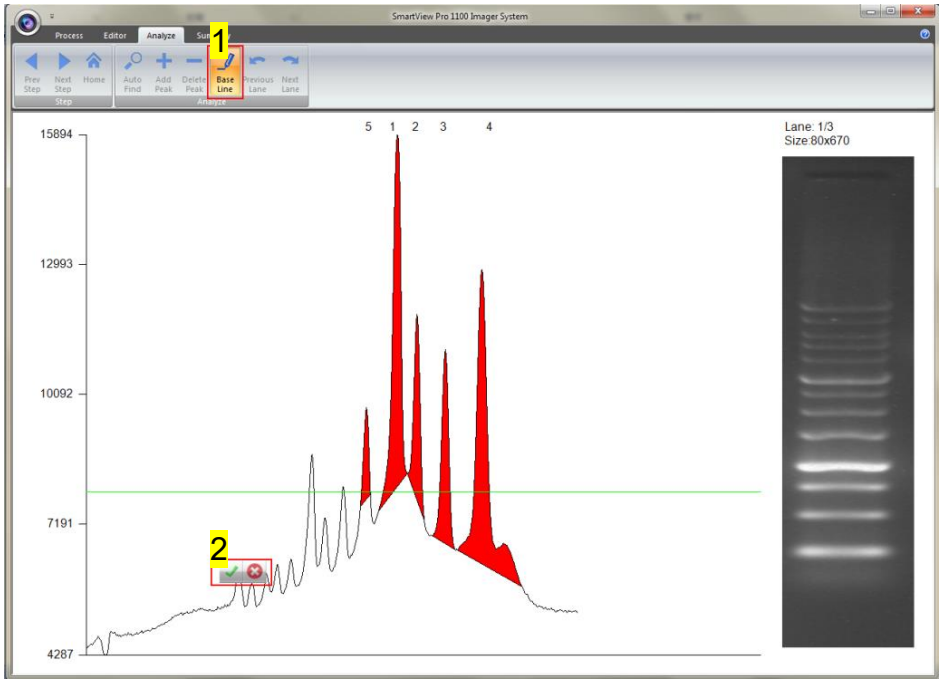
Step3 Delete Peak: Press "Delete Peak" button (as box1), click on that peak (as box 2), the peak will turn gray and then click "✓" to finished.



Step3-1 The peak will turn white. The white peak will not be included in the calculation. The order of the peaks will be rearranged.

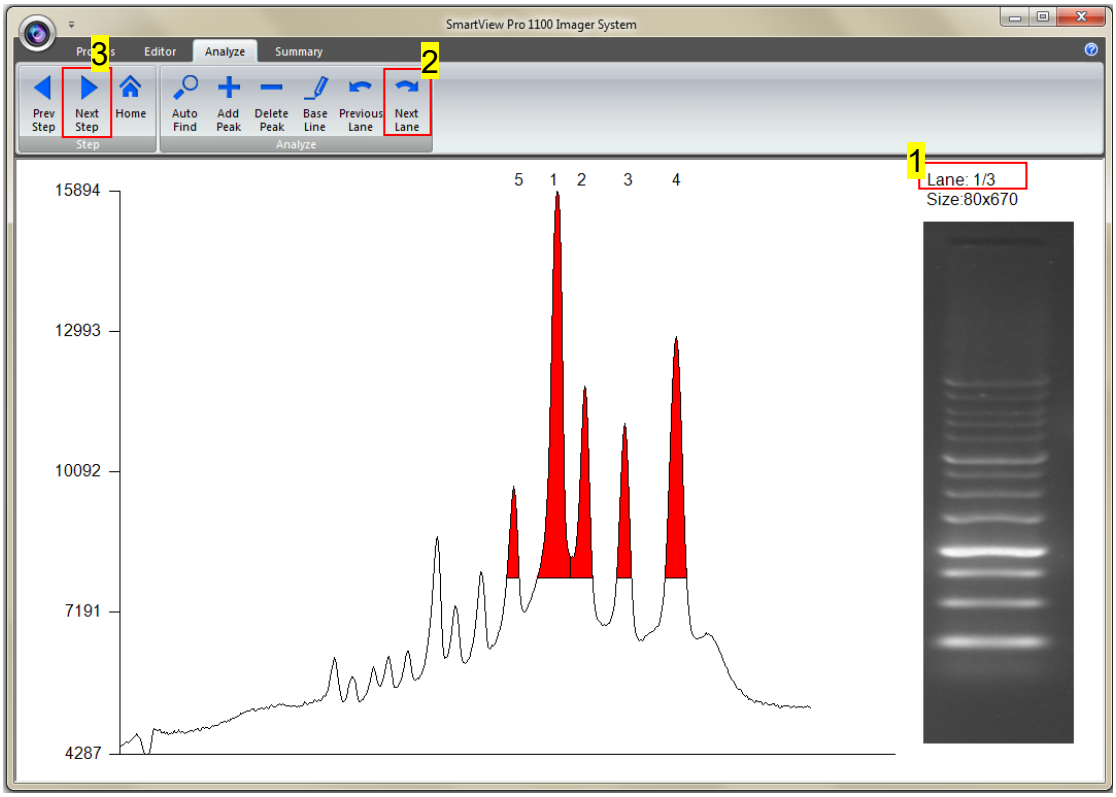


Step4 Base Line: This feature is used to help you increase (or cut off) the peaks you want (or do not want) to include in the quantification step. Press "Base Line" button (as box 1) a green line will show up on the screen, you could move the line to the position you desiredand the peaks above the base line will be selected, then press "✓" (as box 2) to confirm it.



Note: You need to have at least one peak in order for Base Line feature to function.

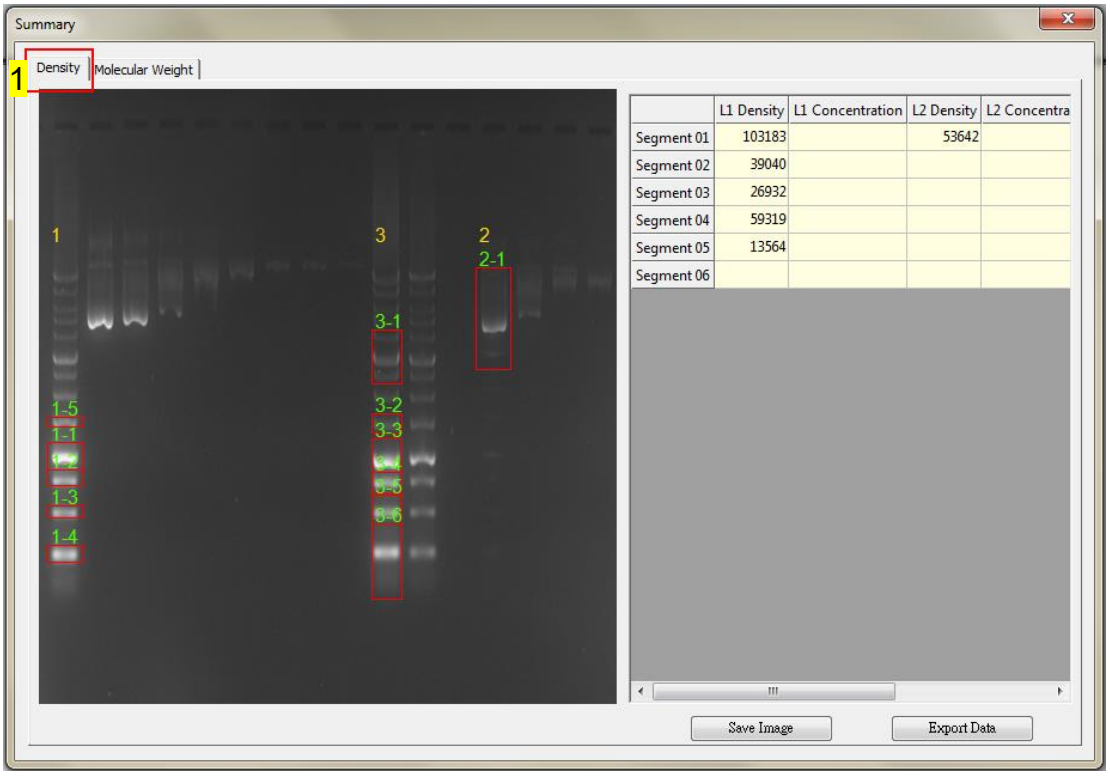
Step4-1 The software will only count the peaks that are above the base line. There were three lanes selected (as box 1) in this example, so you need to press on the "Next Lane" button (as box 2) go to select peaks for lane3 before proceeding to summarizing the data. Click "Next Step" button (as box 3) to move to summarizing the data.



4.3.5 Image Summarization

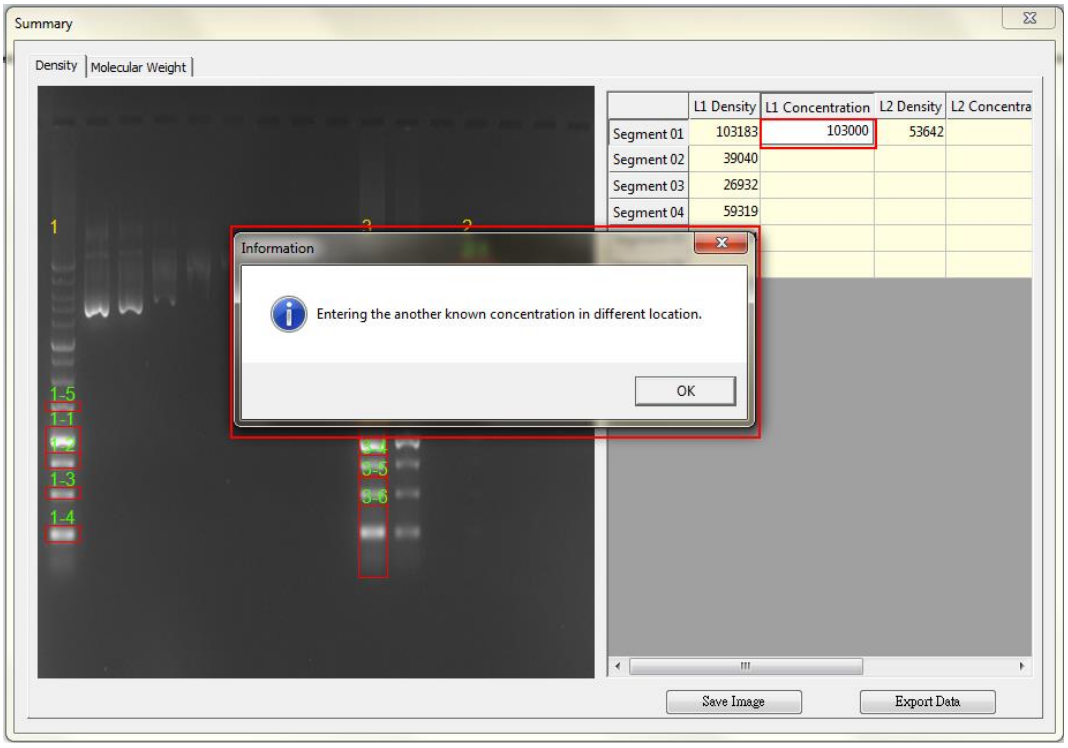
4.3.5.1 Calculating the density

Step1 When clicking the "Density" worksheet (as box 1), you need to input two known concentation from two of the bands from the lane(s).

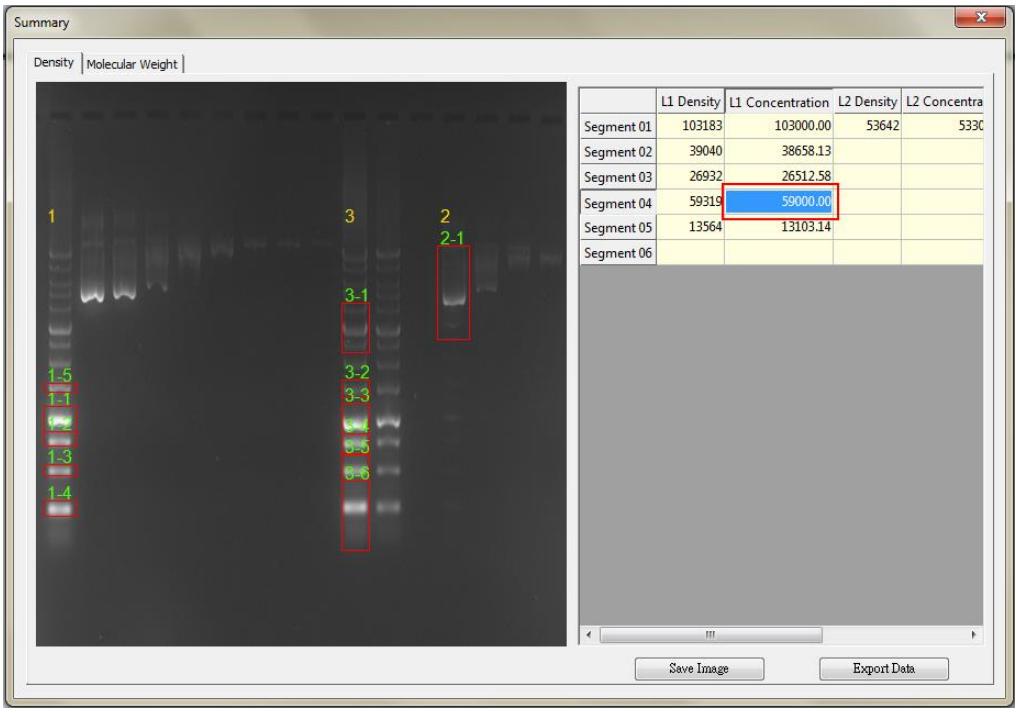


Step2 Double click the blank L1 Concentration box associated with the known marker size. After key in the first value, the system will show a dialog to remind you to key in the second value.

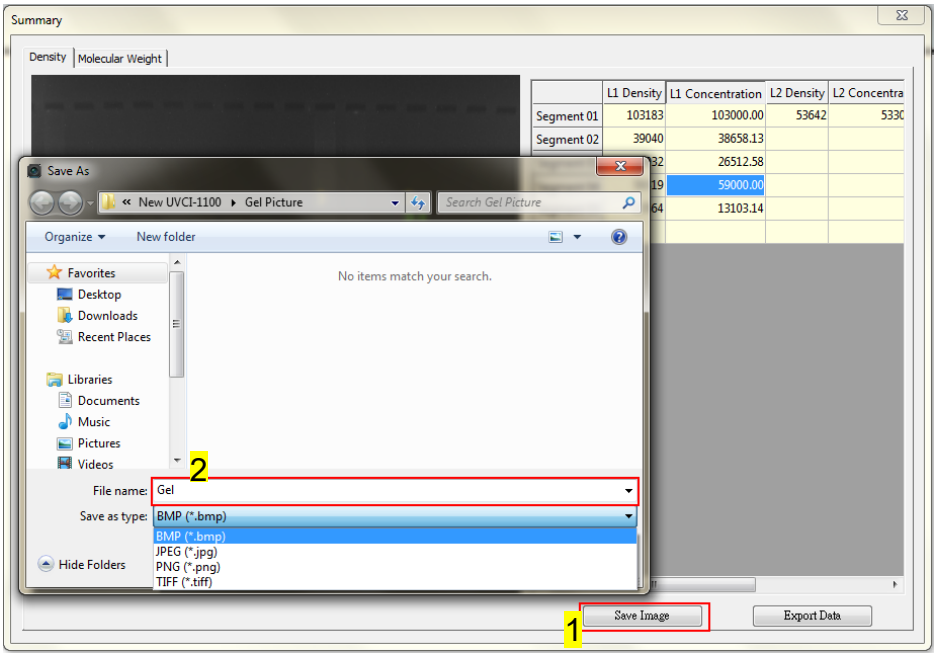
Note: The "concentration" values of marker are provided by marker manufactuerer.



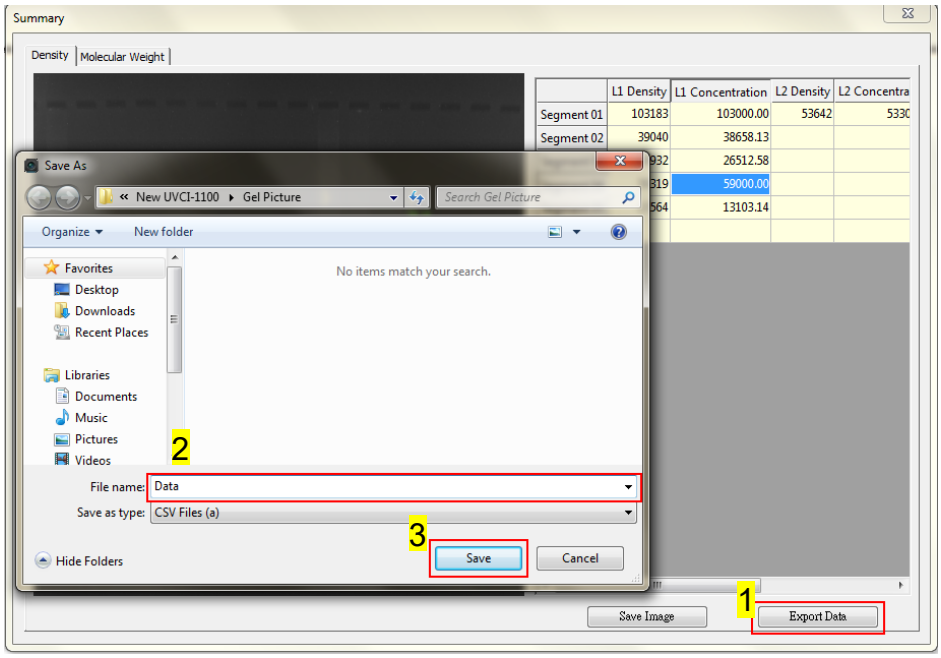
Step3 Entering the second value of known concentation then hit **Enter** on your keyboard to finish, the analysis software will project all the other unknown concentrations based on the 2 known (input) concentrations.



Step4 Click "Save image" button (as box 1) to store this image from the screen. Choose a destination location to save your image. Give the image a file name (as box 2) and press "Save" (as box 3) to finish.

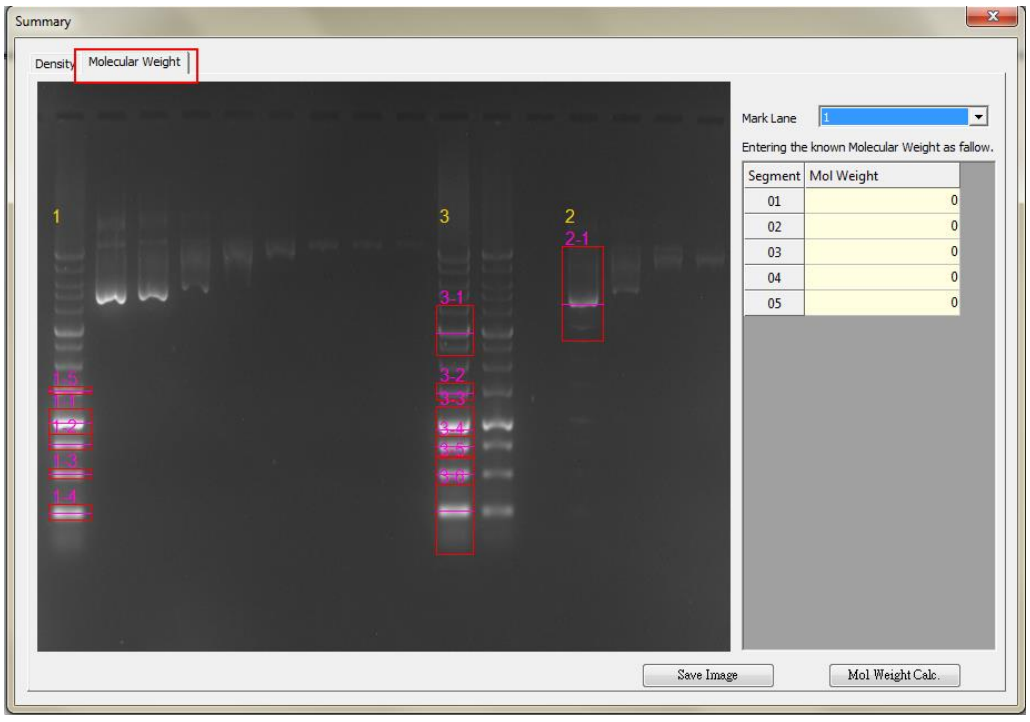


Step5 Click on the "Export Data" button (as box1), a window pops up to ask you to select a destination location to save your file. Give the data a file name (as box 2) and press "Save" (as box 3). (Data is then exported using the CSV file format, which could be easily access by using Microsoft Excel)



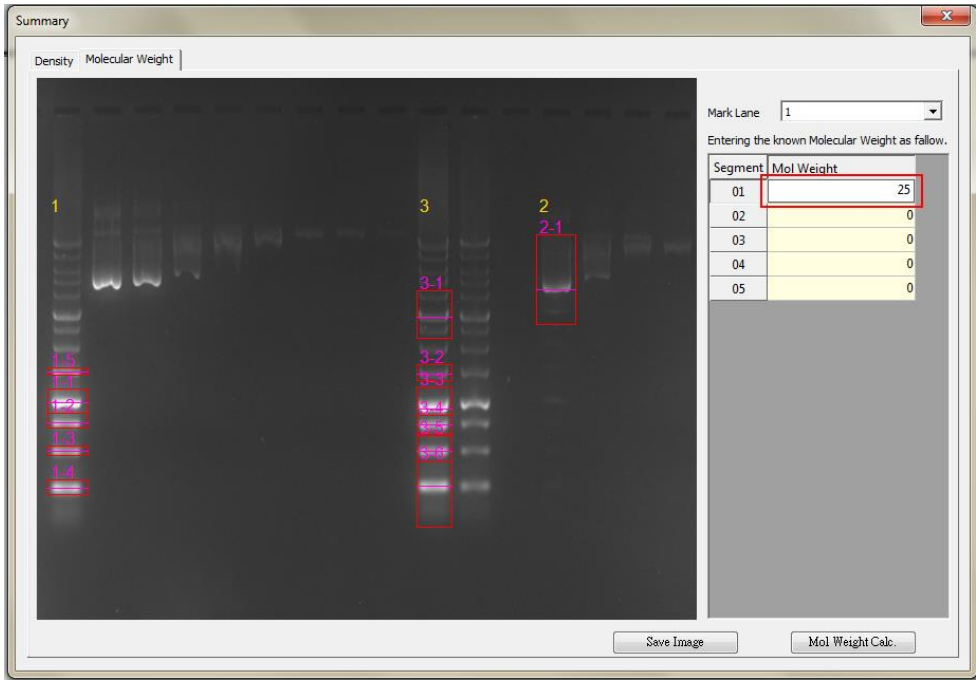
4.3.5.2 Calculating the molecular weight

Step1 Select "Molecular weight" worksheet to move forward with quantification analysis by calculating the molecular weight.



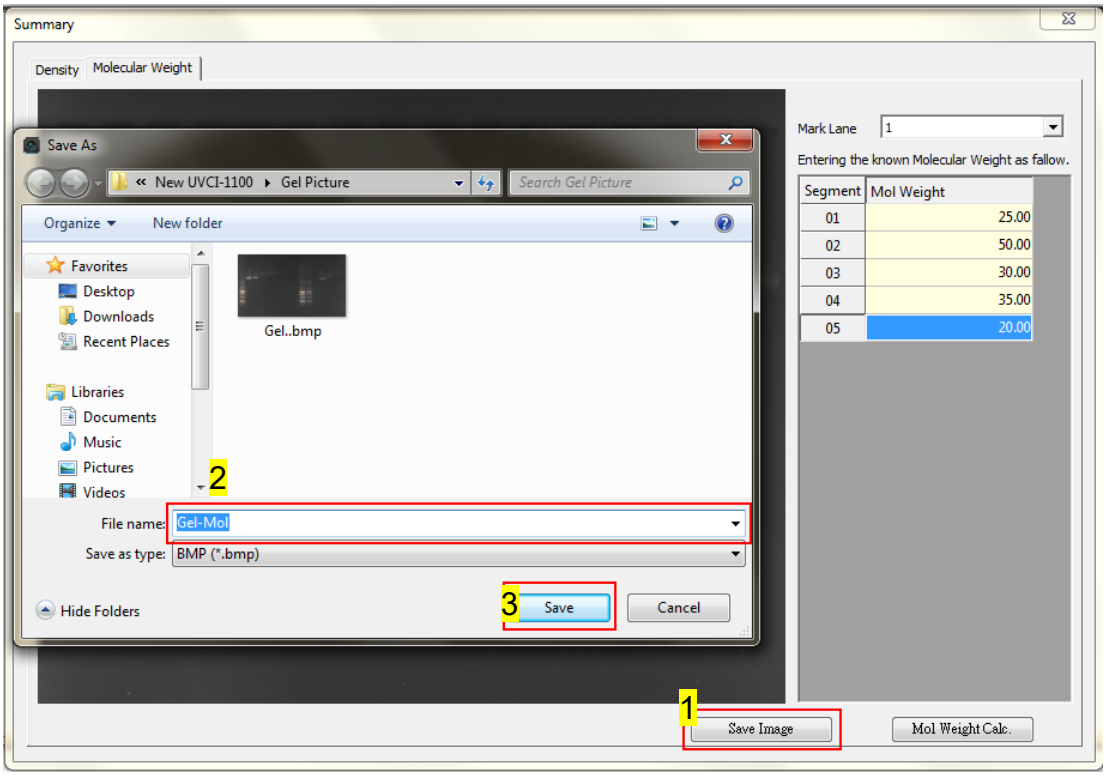
Step2 Key in the respective molecular weight values of the marker in this page.

Note: The "Mol weight" values of marker are provided by marker manufacturer. Click on the "Mol weight" box and then input all known values.

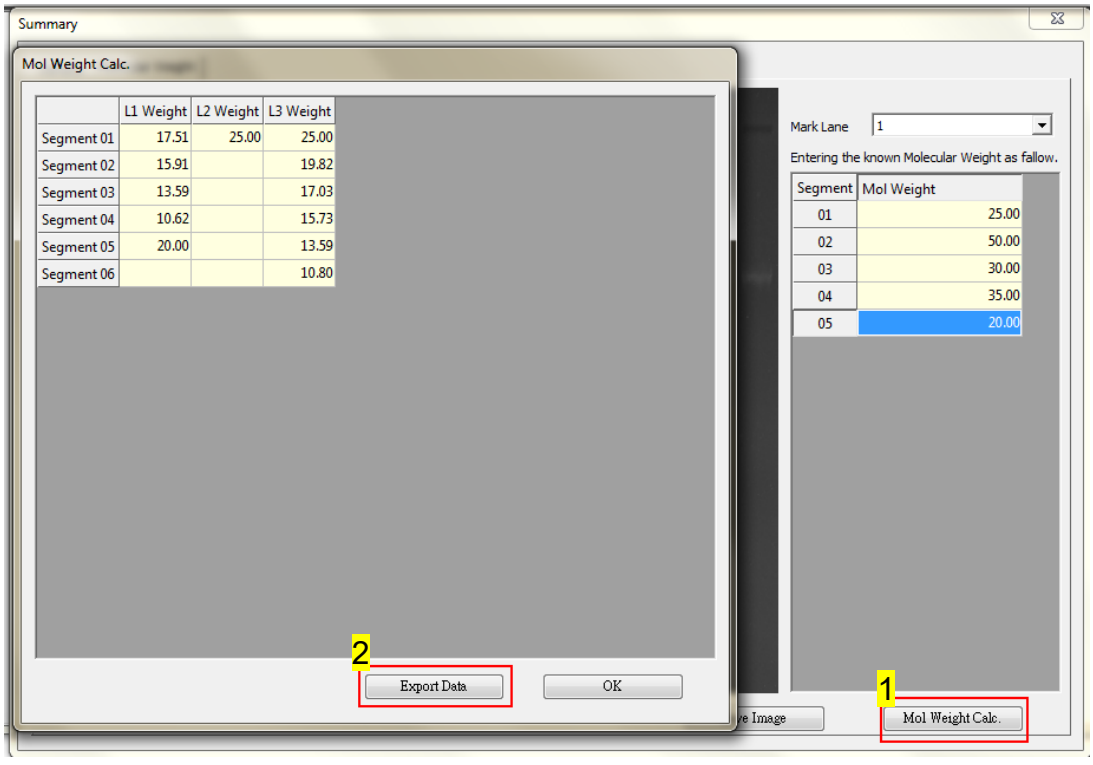


Step3 Fill in all known values of the marker on the list.

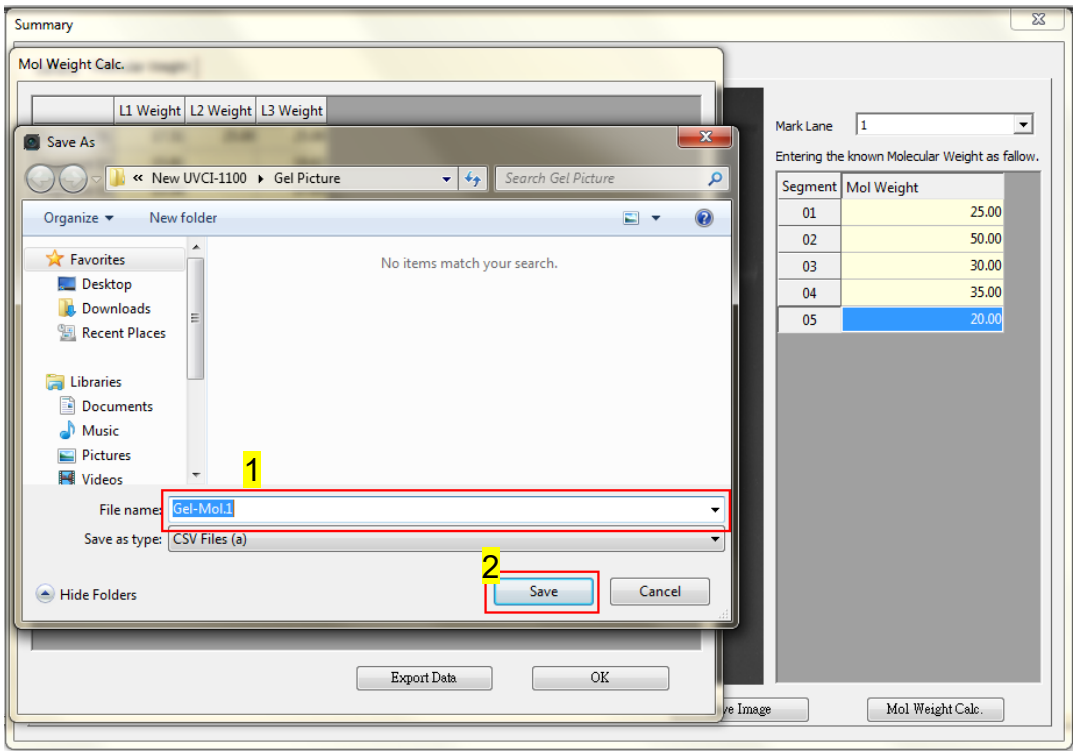
Step4 Click "Save image" button (as box 1) to store this image from the screen. Choose a destination location to save your image. Give the image a file name (as box 1) and press "Save" (as box 2) to finish.



Step5 When clicking the "Mol Weight Calc." button (as box1), this analysis software will calculate the unknown "Mol weight" based on the input marker values. Press the "Export Data" button (as box 2), the software will export the data to a CSV file sheet.



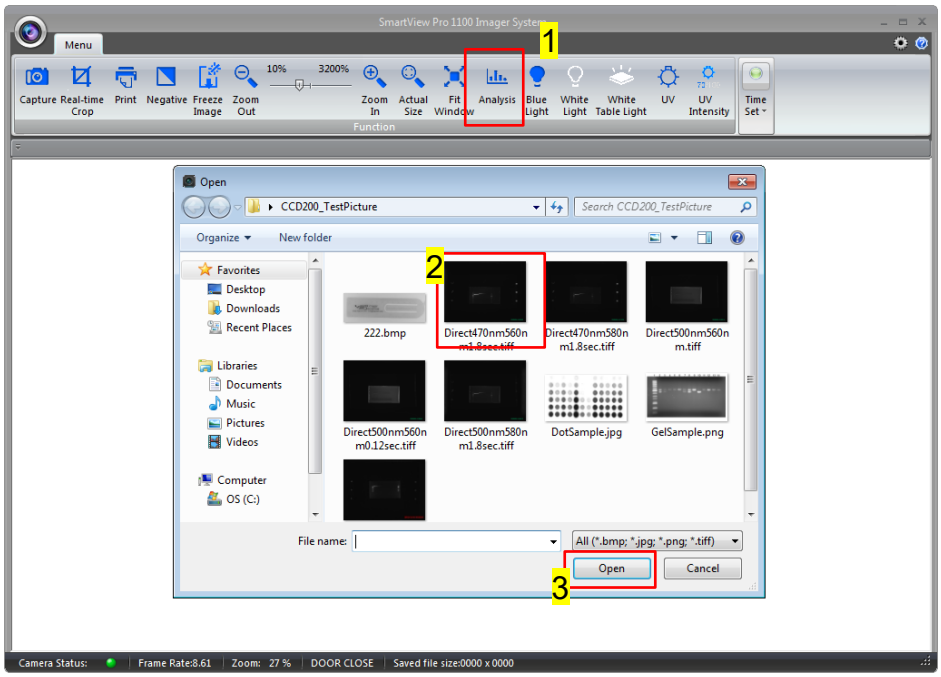
Step6 Choose a destination location to save your export. Give the data a file name (as box1) and press "Save" (as box 2) to finish.



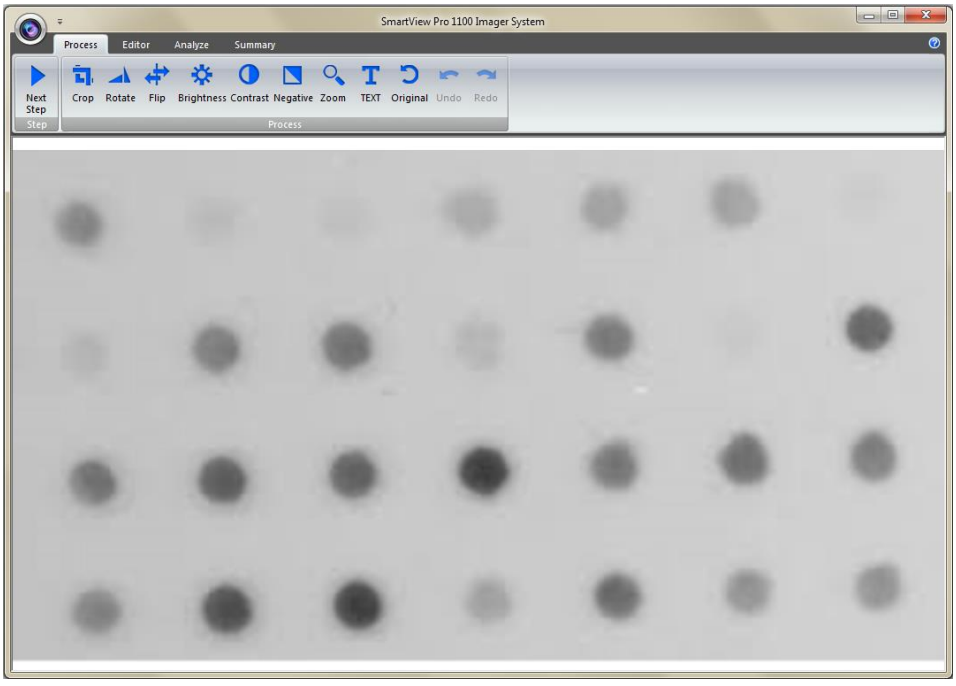
4.4 Image Analysis: Using "Dot blot positive/ Dot blot negative" to analyze the sample

4.4.1 Load the image

Step1 Press "Analysis" (as box 1) to select the image you wish to analyze. You may select the image file from the hard drive or the USB drive. Select an image from the folder (as box 2). Press "Open" (as box 3) to load.



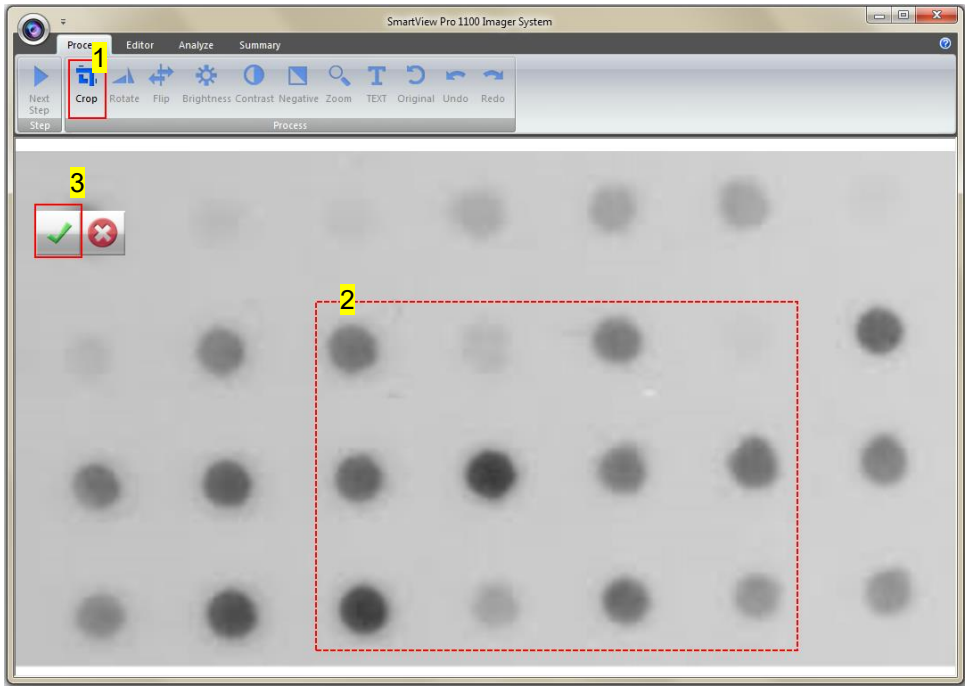
Step2 The image will be shown on the center of a new window.



4.4.2 Processing the Image File

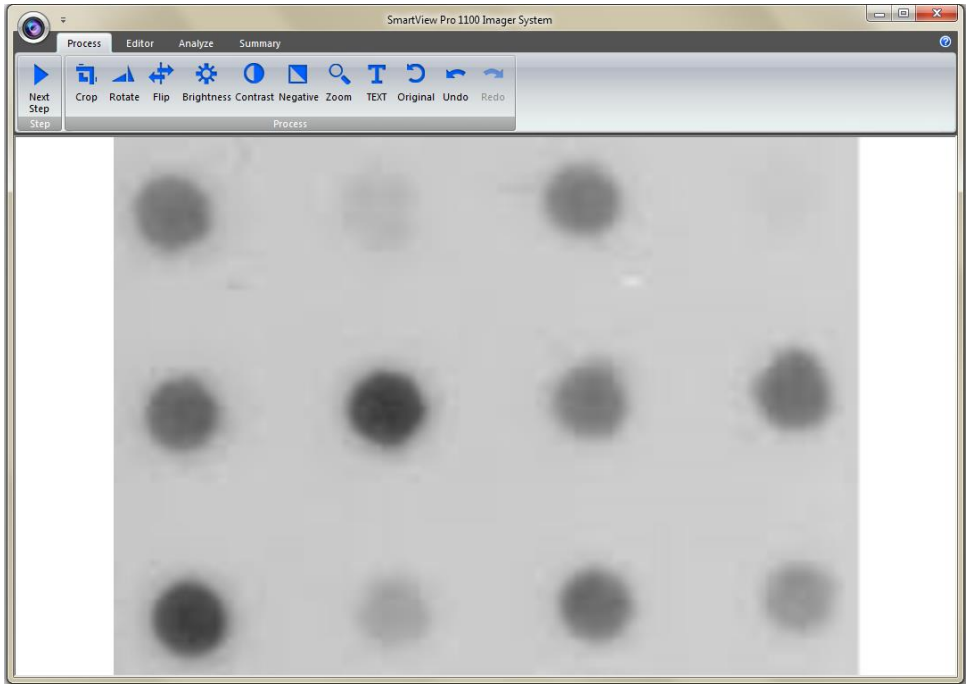
You will be directed to the image processing tool box as shown below.

Step1 Crop: Crop the image by press the "Crop" button (as box 1). In order to select the cropping area of the image, hold and drag the cursor to select the area you want (as box 2). Once you are done. Press "✓" (as box 3) button to confirm or press "x" to cancel.



Step1-1 The image will be shown below as you selected.

*** Remember**: Always rotate the image before you crop!



Step2 Rotate: To rotate the image, first select the "Rotate" button (as box1) and the toolbar (as box 2) will pop up.

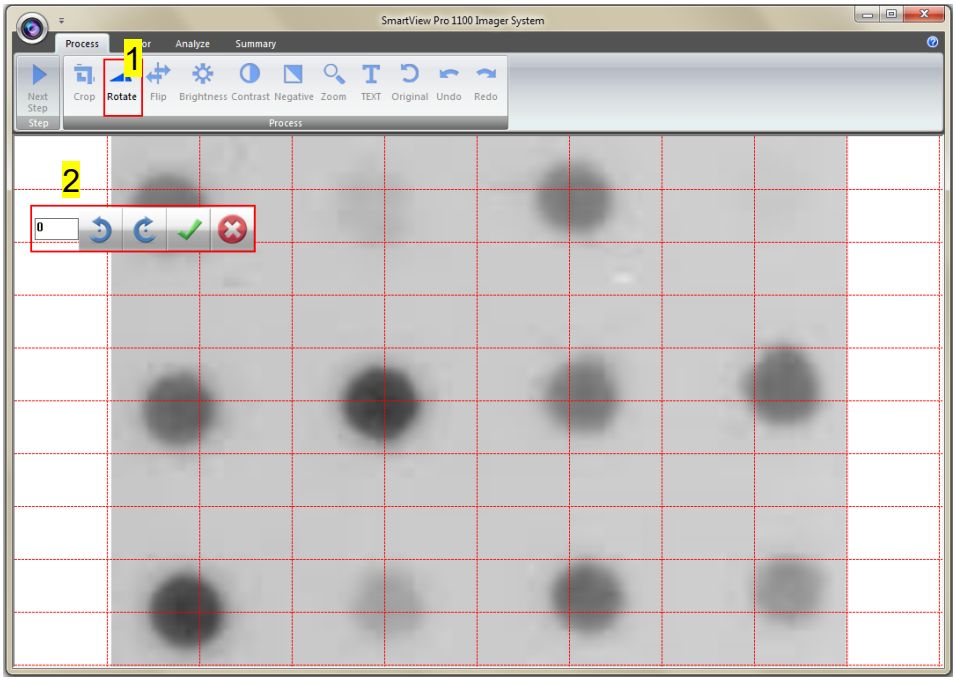
Toolbar:

a.  : Rotate counter-clock wise

b.  : Rotate clock wise

c.  : Confirm action

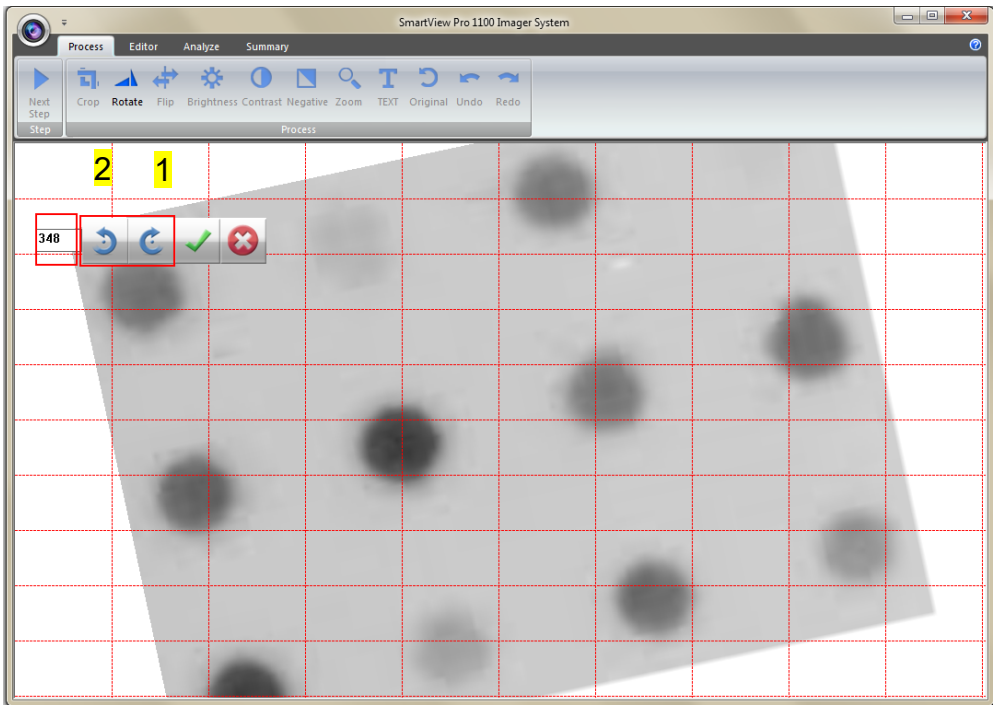
d.  : Cancel



Step2-1 You may rotate the image counter-clock wise or clock wise in two ways:

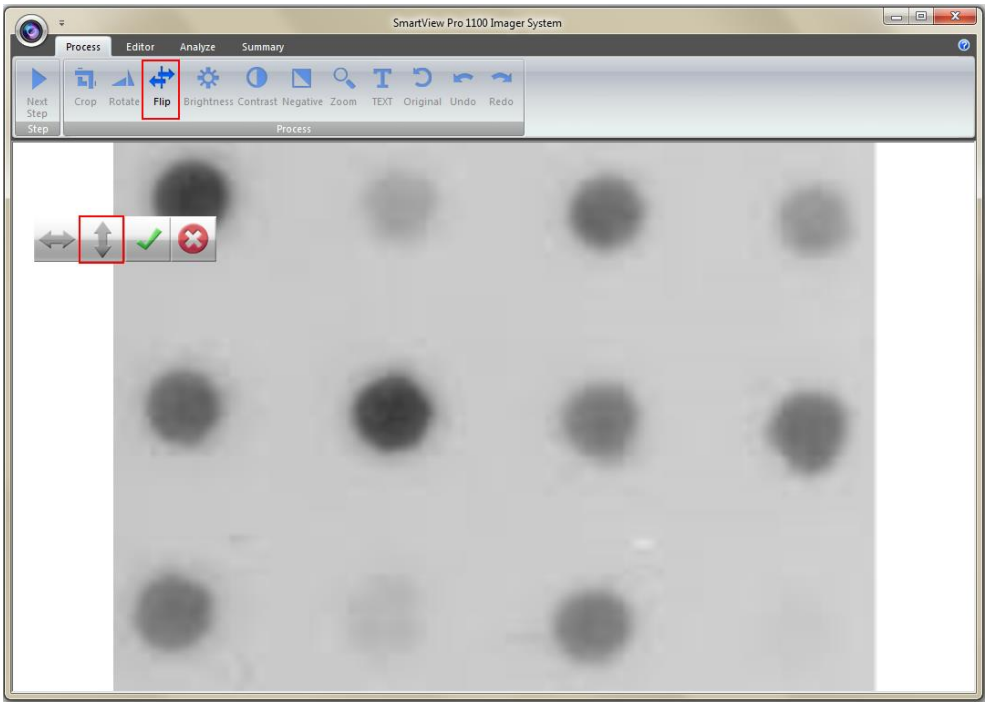
a. Using the toolbar labelled as box 1, press "✓" to confirm action.

b. Input the desired angle (0~359) directly in the blank space labelled as box 2, press **ENTER** first before pressing "✓" to confirm action.

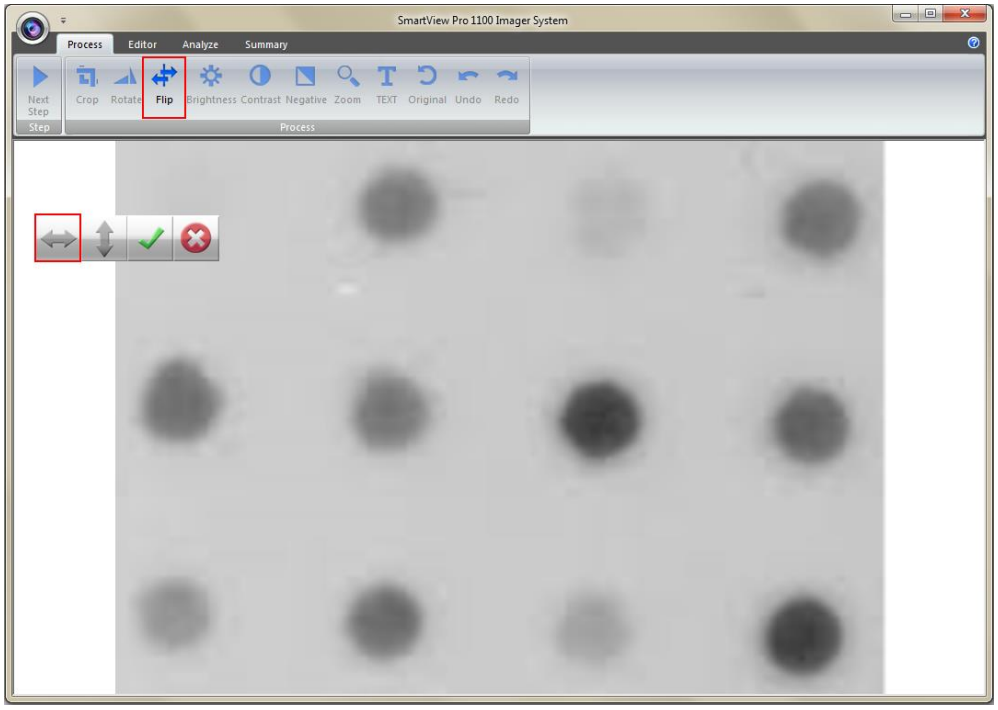


Step3 Flip: To flip the image according to the orientation you desired.

a.  : Invert the image upside down.



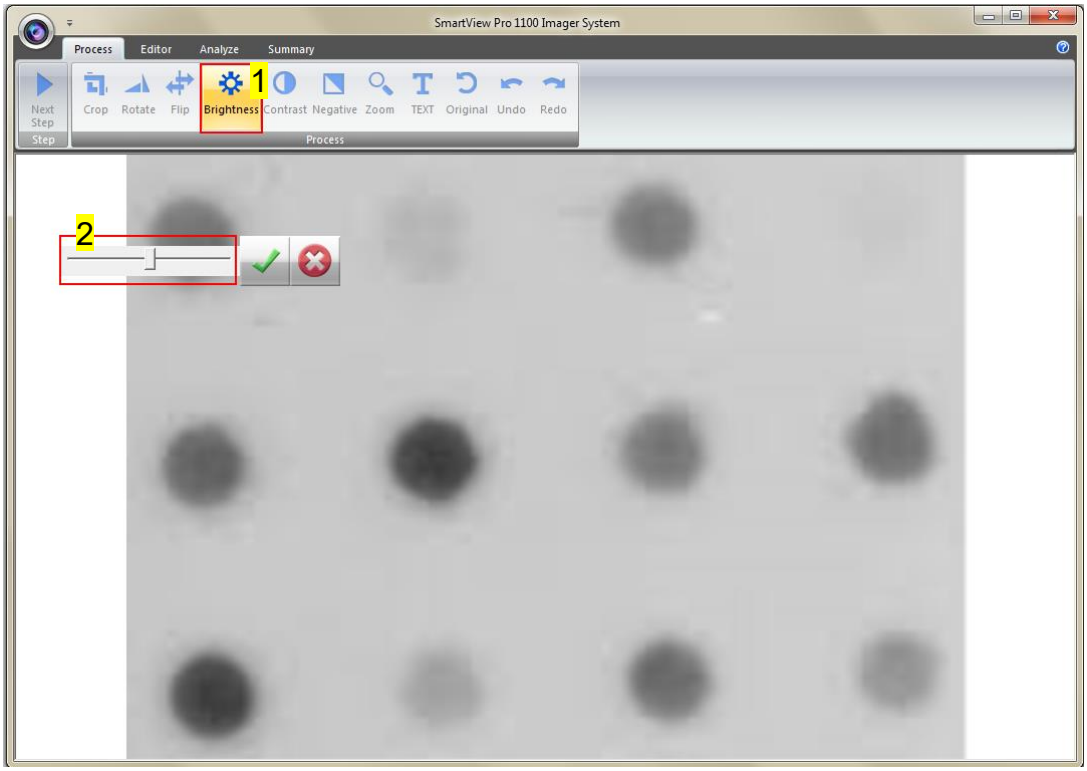
b.  : Invert the image from left to right.



c.  : Confirm action d.  : Cancel

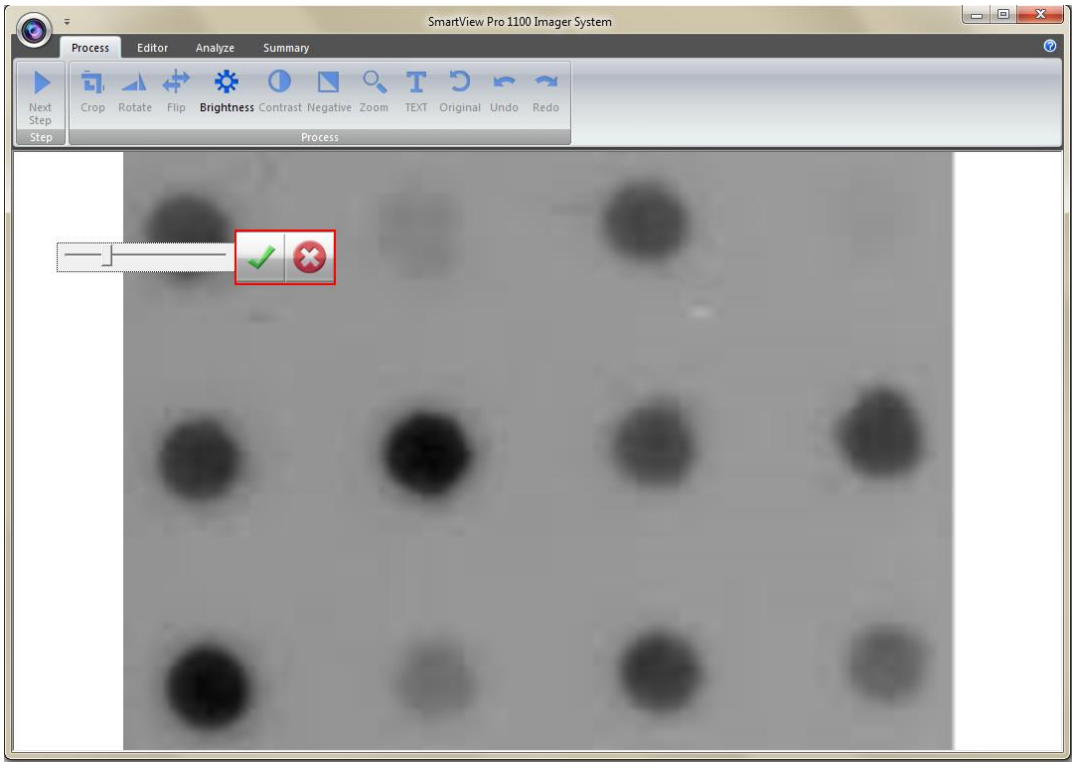
Step4 Brightness: Adjusting the brightness of the image by pressing on the "Brightness" button (as box 1), then use the scrollbar (as box 2) to adjust the brightness level.

a.  : Low – High



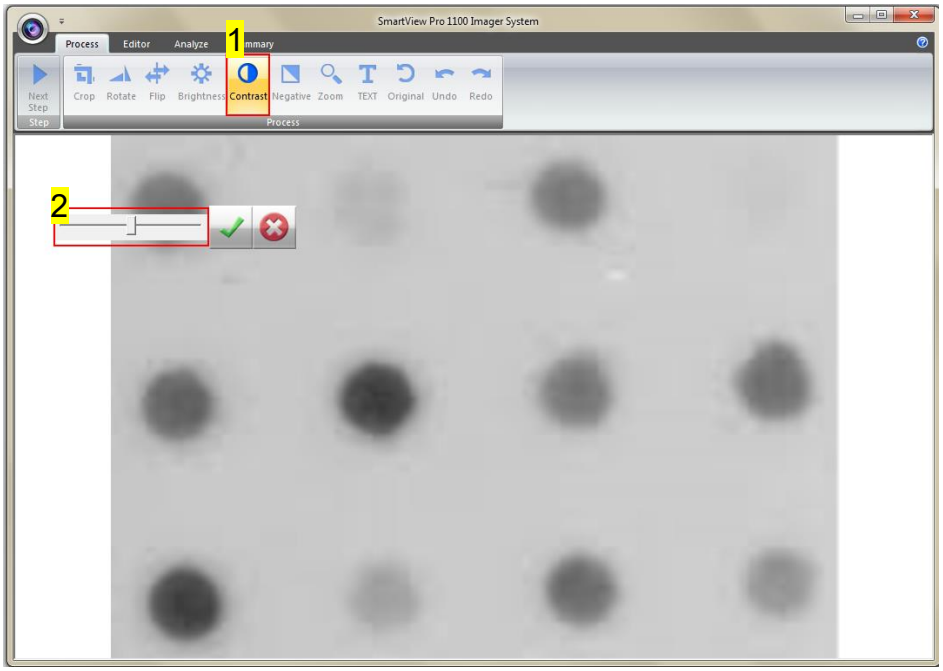
Step4-1 The result of Brightness is shown below. Press "✓" to proceed or press "X" to cancel.

b.  : Confirm action c.  : Cancel



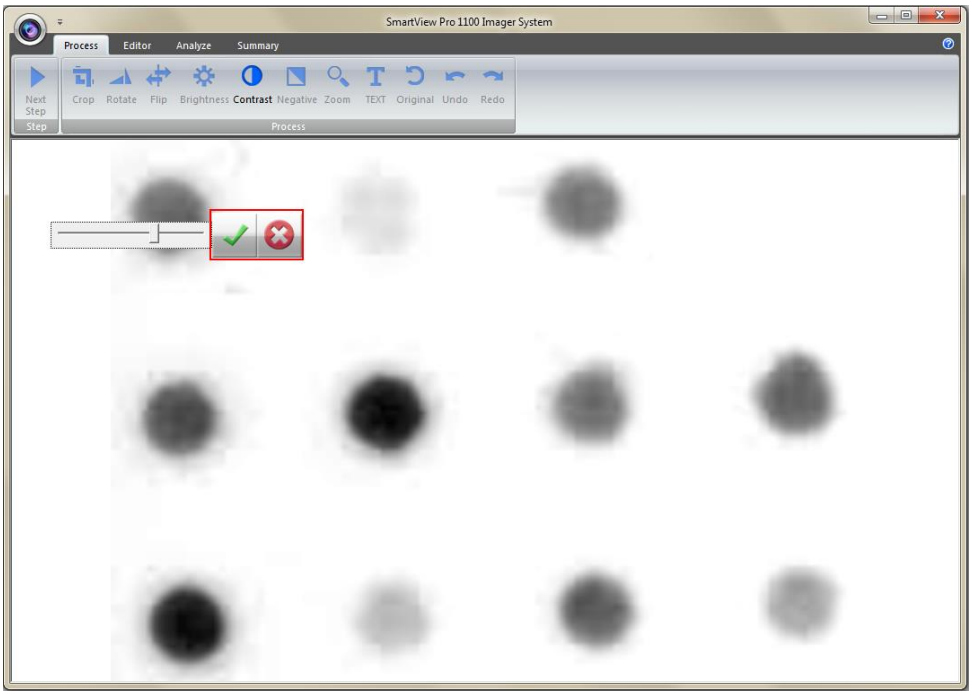
Step5 Contrast: Adjusting the contrast level of the image by pressing the "Contrast" button (as box 1), then use the scrollbar (as box 2) to adjust the contrast level.

a.  : Low – High

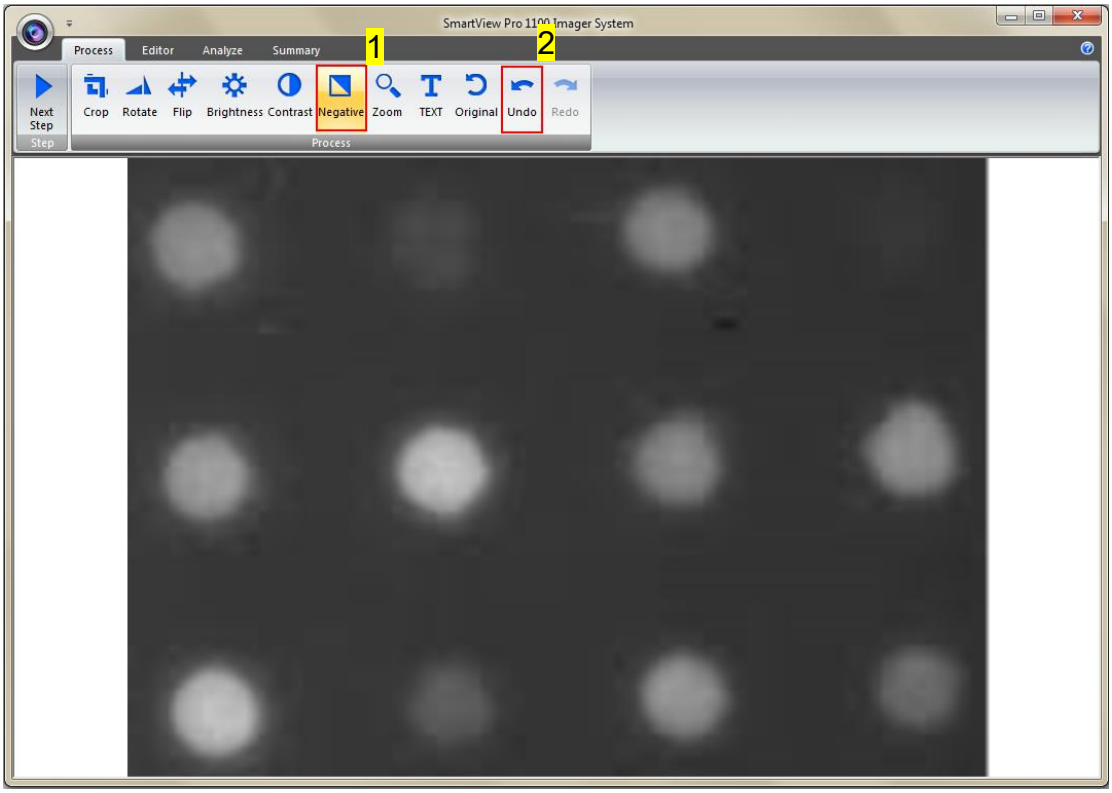


Step5-1 The result of Contrast is shown below. Press "✓" to proceed or press "x" to cancel.

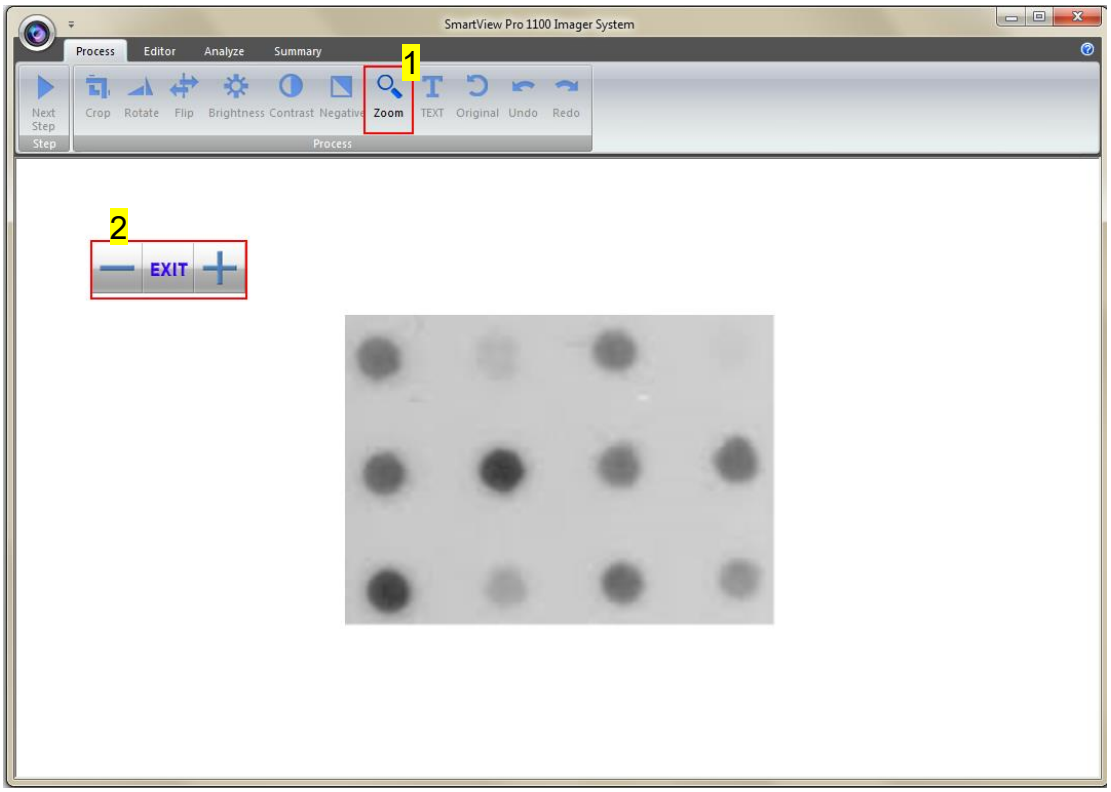
b.  : Confirm action c.  : Cancel



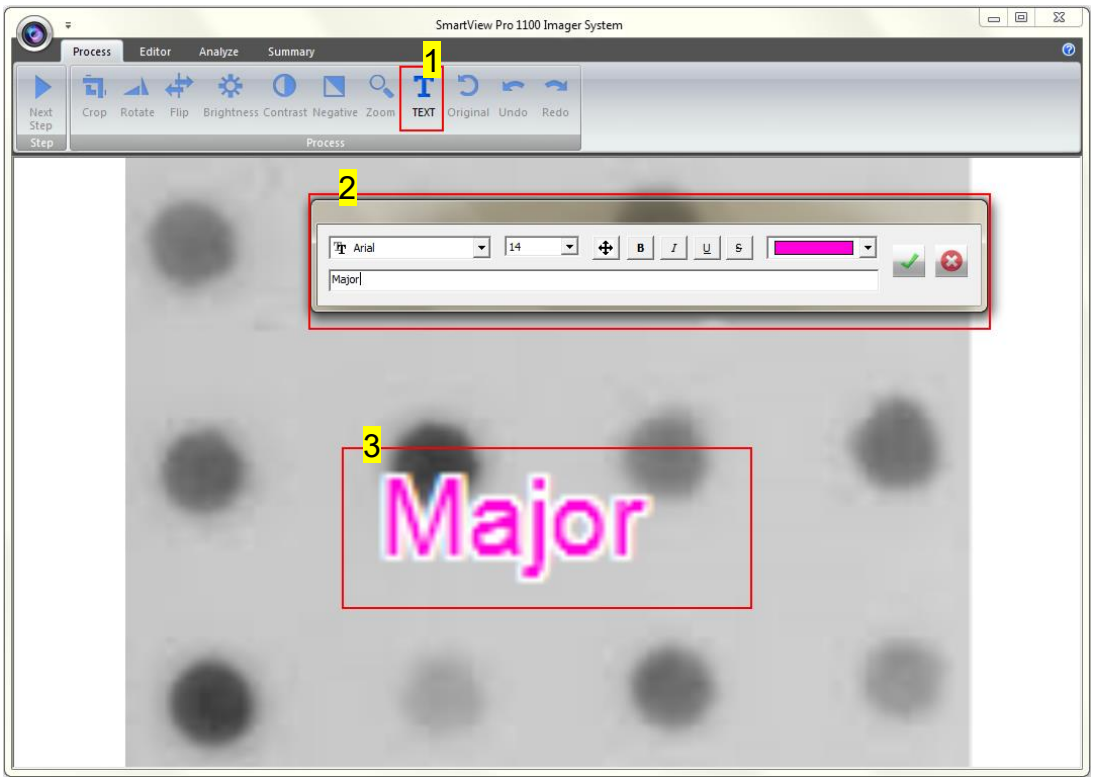
Step6 Negative: To reverse the image between black and white by pressing on the "Negative" button (as box 1). If you don't want to negative the image, you can press the "Negative" button again or you can press the "Undo" button (as box 2) to recover the image.



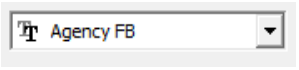
Step7 Zoom: Adjusting the zoom of the image by pressing on the "Zoom" button (as box 1) and then a toolbar will pop out. If you want to zoom in the image, press the "+" button (as box 2). If you want to zoom out the image, press the "-"button (as box 2). Press "EXIT" to finish. This feature simply lets you zoom in and zoom out of the image but will not make any changes to the image file.



Step8 Text: You could add text onto the image. Click on the "Text" button (as box 1) and then the toolbar (as box 2) will show up. The sample text (as box 3) will show on middle of the screen.



Step8-1 Click on the input box, type in your text here. You could adjust your text using this toolbar. The toolbar functions are explained as below.

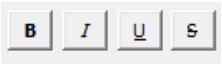
a. 

: Change the font type

b. 

: Change the font size.

c.  : Move the text to the desired location by move the mouse cursor to the desired location on the image and click the left button of the mouse.

d. 

: Change the font properties.

e. 
: Change the color of the font.

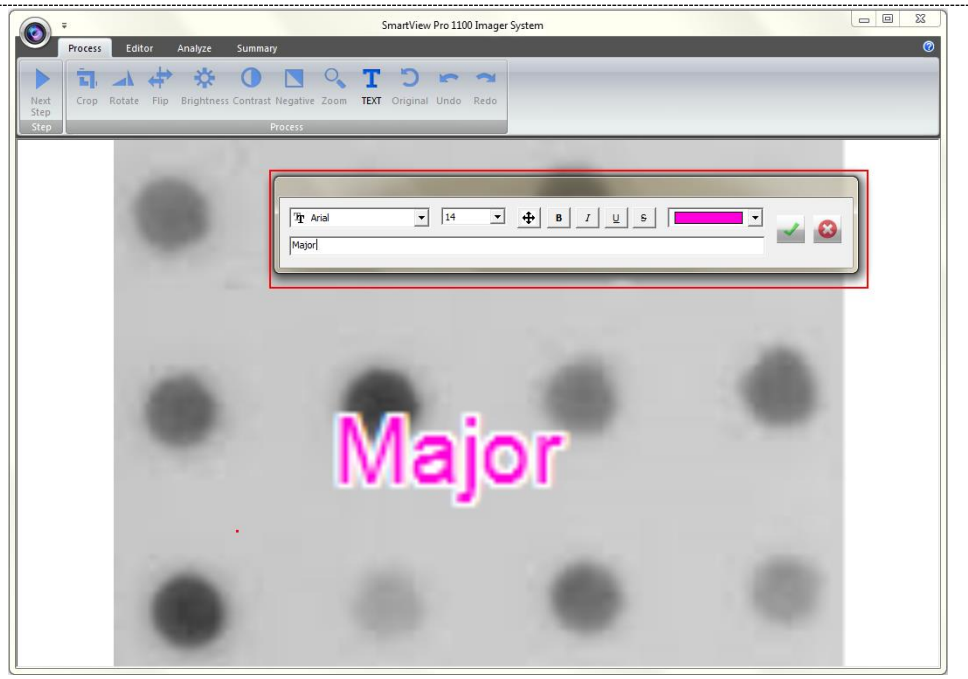
f. 

Input box: Type in your text here, press **ENTER** first before pressing "✓" to confirm action.

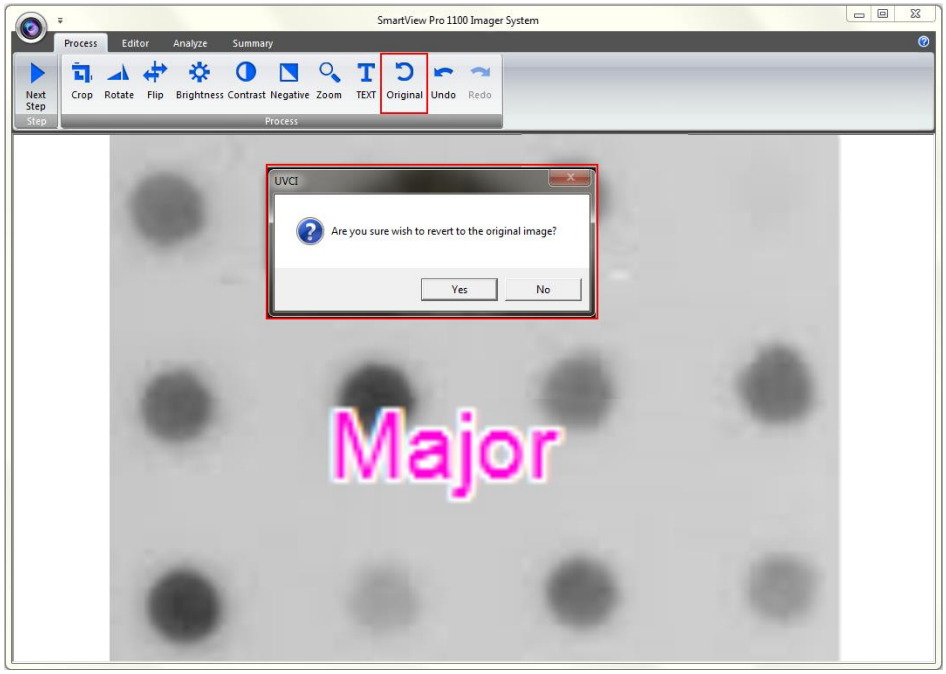
g.  : Confirm action

h.  : Cancel

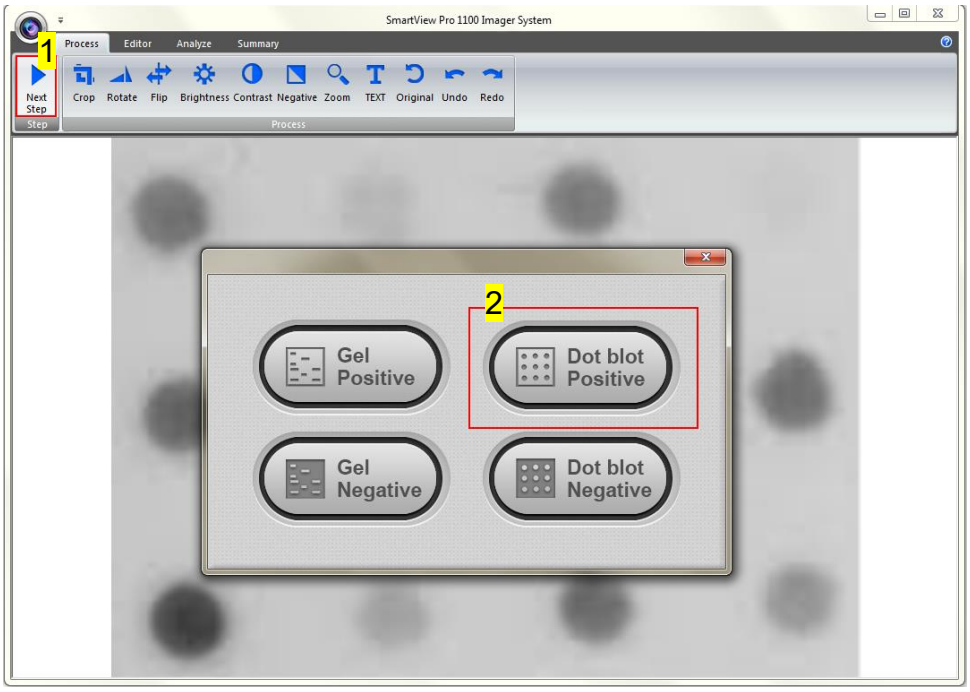
Note: 1. To add another set of text, please press "TEXT" again.
2. To remove a text, please use "Undo".



Step9 Original: This is the master undo button. It will undo ALL the changes you made to the image and revert it back to the original image. A massage will pop up to ask for confirmation once you press the "Original" button. Press "Yes" to proceed.

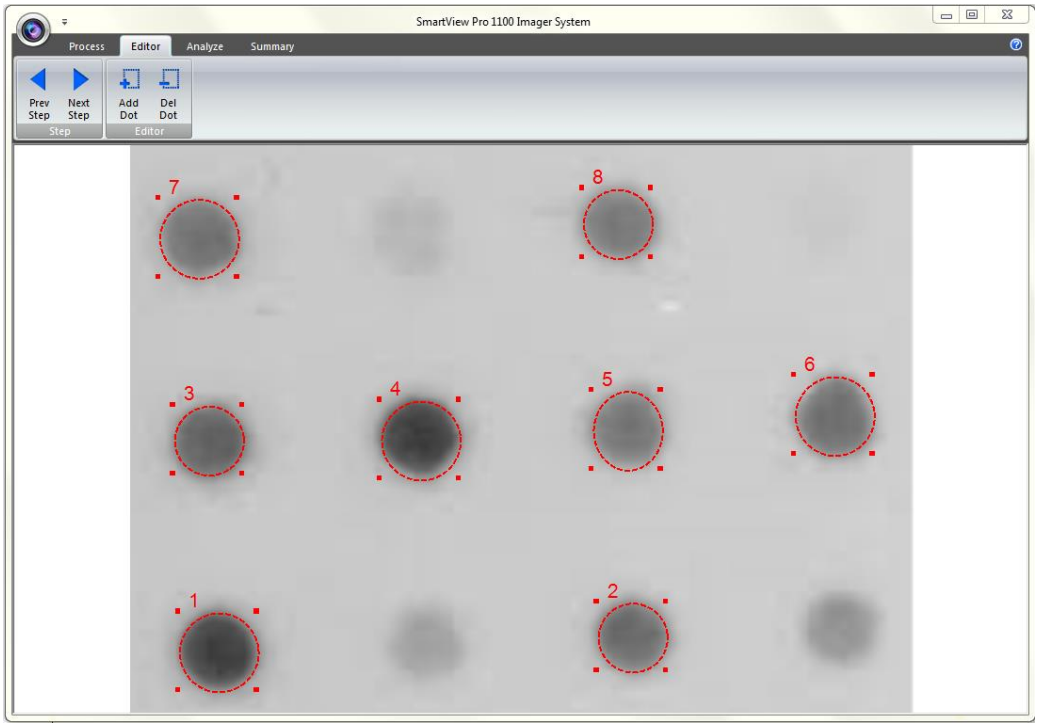


Step10 Next Step: Press "Next Step" button (as box1) to continue the analysis. There are 4 analysis methods for you to choose depending on your application. For example, we choose "Dot blot Positive" (as box 2) for DNA gel electrophoresis. (This instruction for operating under Dot blot Positive and Dot blot Negative is the same)

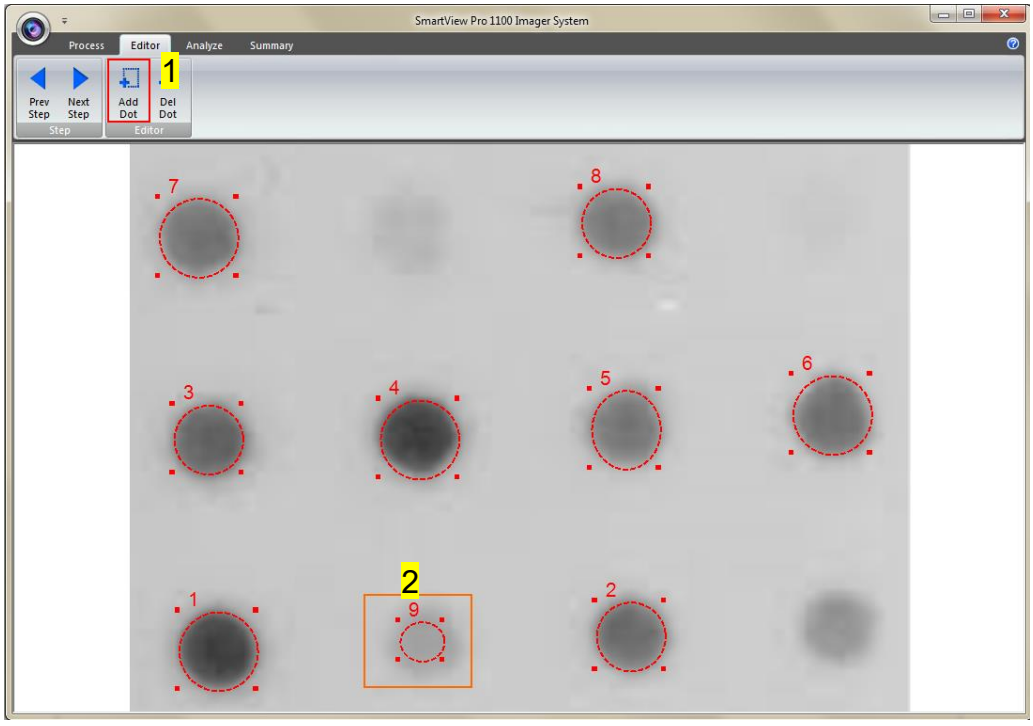


4.4.3 Selecting the Image Dot

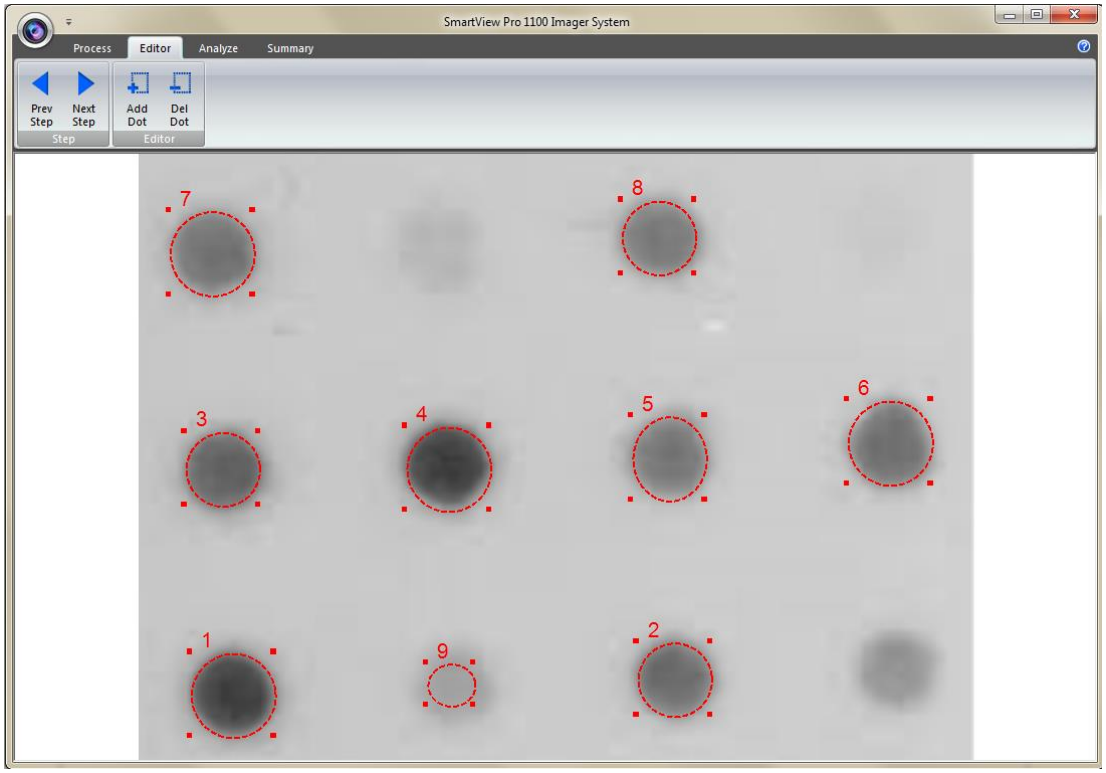
Press "Dot blot Positive" button and the software will automatically analyze the dot-blot samples from the image.



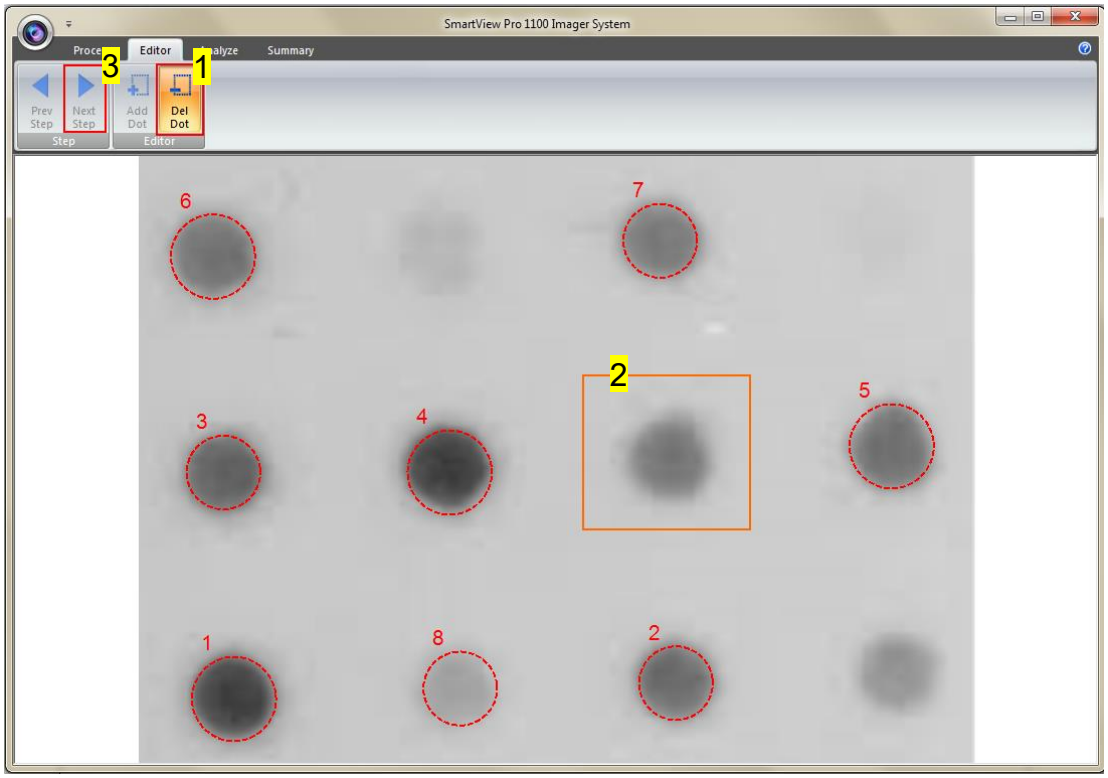
Step1 Add Dot: Click "Add Dot" button (as box 1) to add one sample. Use the mouse to select the sample (as box 2) from the screen. Each time you press the "Add Dot" button, the system will duplicate a random circle size. Use the cursor to adjust the circle size.



Step1-1 The image will be shown below as you have selected.

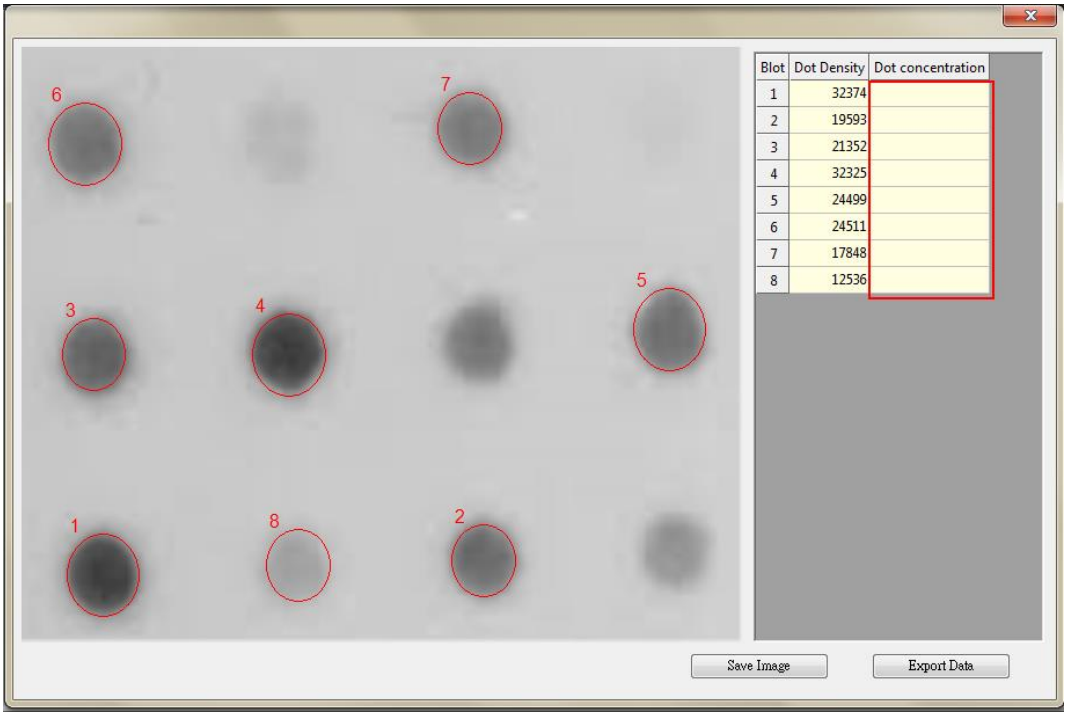


Step2 Delete Dot: Press "Del Dot" button (as box 1), and then select the dot (as box 2) you want to delete. After selecting the dot, click on "Next Step" button (as box 3) to move forward to next step.

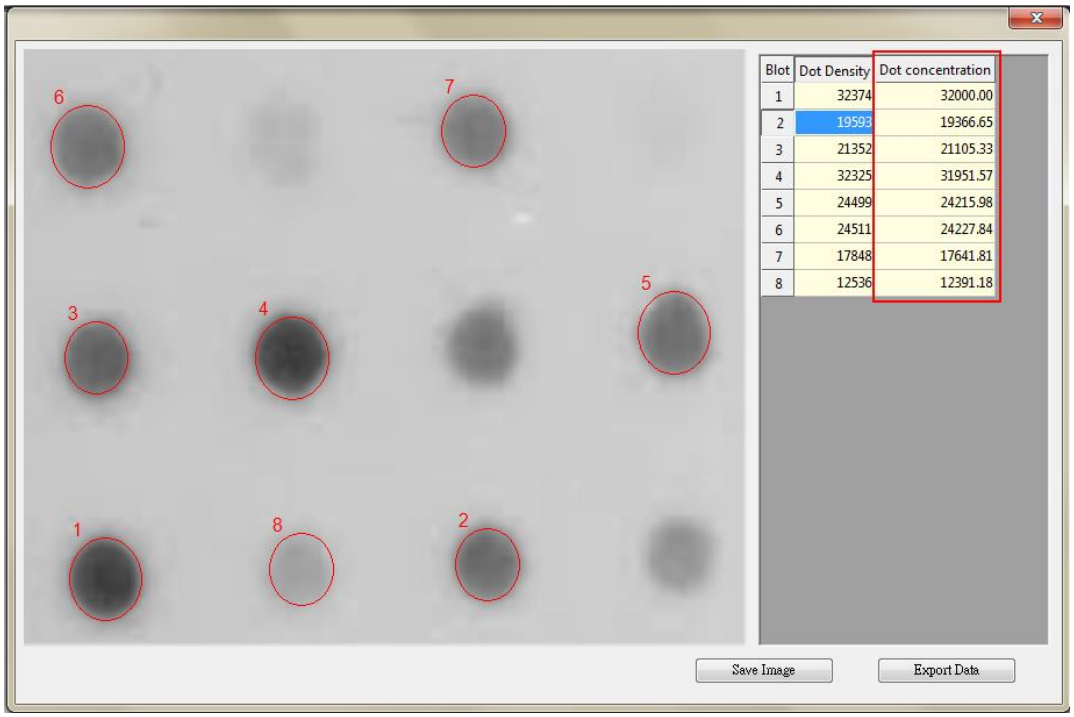


4.4.4 Calculating the density

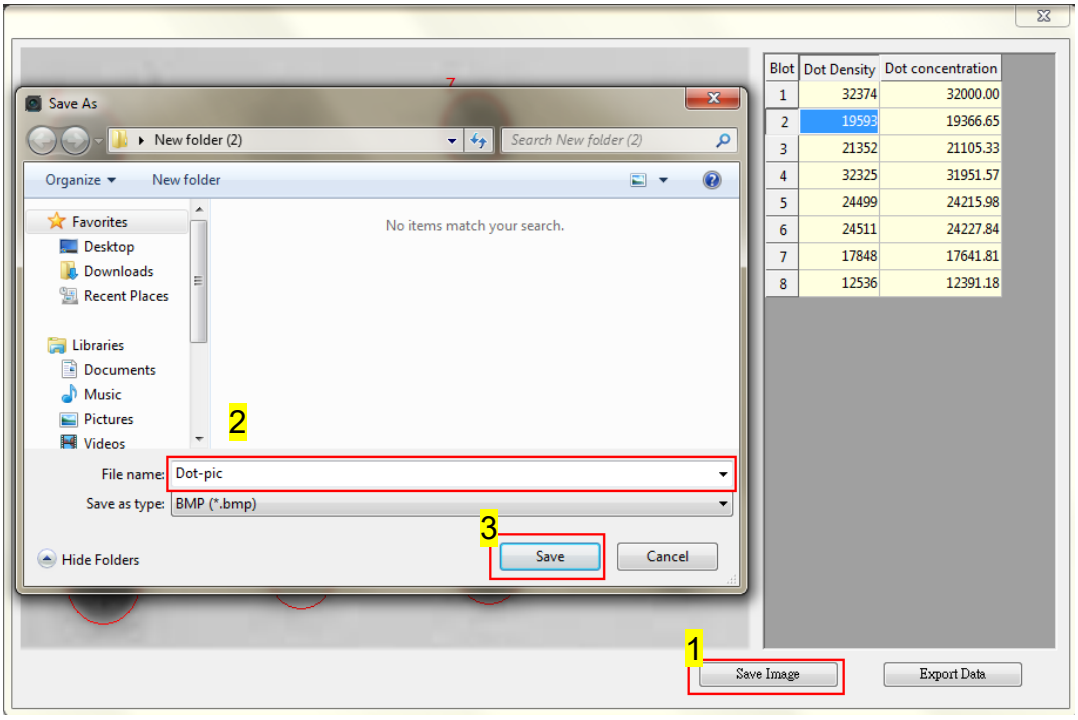
Step1 Double click on the "Dot concentration" blank boxes to input the real density of each sample. (You will need at least one value in order to calculate the rest of the numbers.)



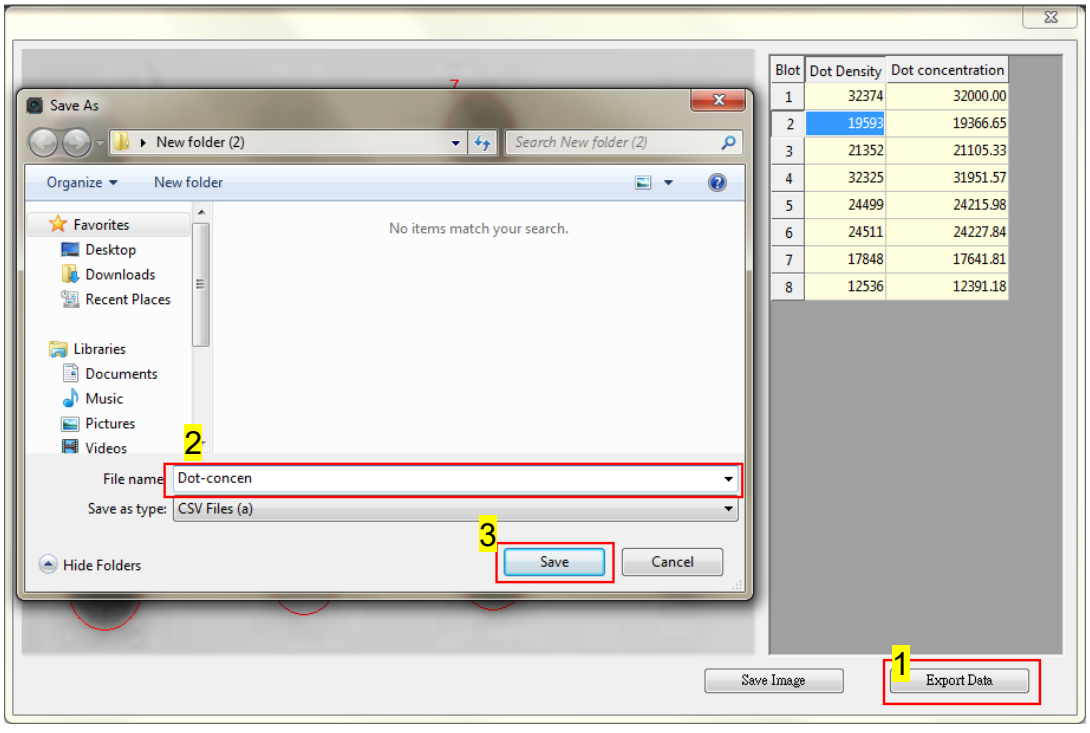
Step2 Enter the value of known concentration. The analysis software will project other unknown concentrations based on the known (input) concentration.



Step3 Click "Save image" button (as box 1) to store this image from the screen. Choose a destination location to save your image. Give the image a file name (as box 2) and press "Save" (as box 3) to finish.

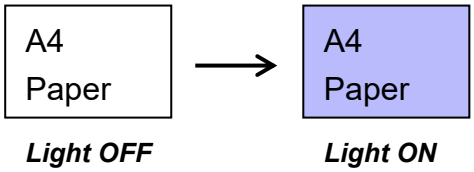


Step4 Click on the "Export Data" button (as box 1), a window pops up to ask you to select a destination location to save your file. Give the data a file name (as box 2) and press "Save" (as box 3) to finish. (Data is then exported using the CSV file format, which could be easily access by using Microsoft Excel)



Section 5 Troubleshooting Guide

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, please contact our SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Suggestion
Screen doesn't light on	Check the main power switch is on
No Signal from the CMOS camera	• Please check if the camera is on. • Check power input cable between CMOS camera and chamber is connected well. • Check video output cable between CMOS camera and chamber is connected well.
Light lamp doesn't light up	Check white light lamp is switched on
UV light doesn't light up	Check UV transilluminator is switched on. ★ Since 312nm wavelength UV is invisible light, you can put on a sheet of white paper onto the transilluminator to help distinguish if the light is on.  ***Light OFF*** ***Light ON***
Cannot print the image file on 64 bit system (e.g. Select the printer type as Adobe PDF).	Please select the PDF Creator type to print the image. PDF Creator download web site: http://www.pdfforge.org/pdfcreator
Cannot operate the lights, or capture the images.	• Check if the device is connected with your computer. • If the device is connected with the computer, then check if Bluetooth function in the computer is off. ***(*Note1)***

The software displays “Device not found”.	• Please contact the service department of Major Science or your local distributor.
The software displays “Com port not found”.	• You did not connect the computer with device. • Check the connection between the computer and device. • You did not install the drivers on the computer. Check the detail instruction of installation in *Section 3.3*.

***Note1:**

If Bluetooth of the computer is turned on when SmartView Pro Imager System is connected, it may conflict with the com port (a signal connector) on the device, and cause the malfunction. When the situation occurs, we suggest turning off Bluetooth and try again to operate the device.

Section 6 Cleaning & Maintenance

The painted surfaces of the filter areas on the built-in UV Transilluminator must be cleaned with water and soap, using a sponge or towel. Dry the filter surface with a soft cloth after each operation. Never use abrasive cleaners, solvent based cleaners or scouring pads. The housing may be cleaned with a moist cloth containing a mild soap solution.

Always disconnect the SmartView Pro Imager System from the electrical power prior to cleaning.

6.1 Replacing the Fuse

For additional fuses, contact Major Science Co., Ltd.

To replace the fuse:

1. Turn off the main power switch at the rear of system and detach the power cord.

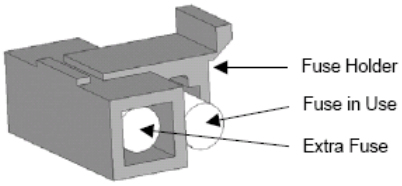
2. Open the fuse compartment located inside the Power Entry Module by inserting a small flathead screwdriver into the slot below the ON/OFF switch. Turn the screwdriver to gently pry open the fuse compartment.

Note: the fuse compartment will not open with the power cord in place.

3. Pull the fuse holder out of the compartment and inspect the fuse. If the fuse is burned or there is a break in the fuse element, replace the fuse with an identical type of fuse (**T2A/250V~**) as provided in the fuse holder (see figure below)

4. Place the fuse holder back into the compartment.

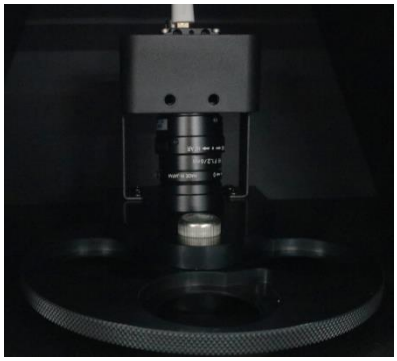
5. Snap the cover close.



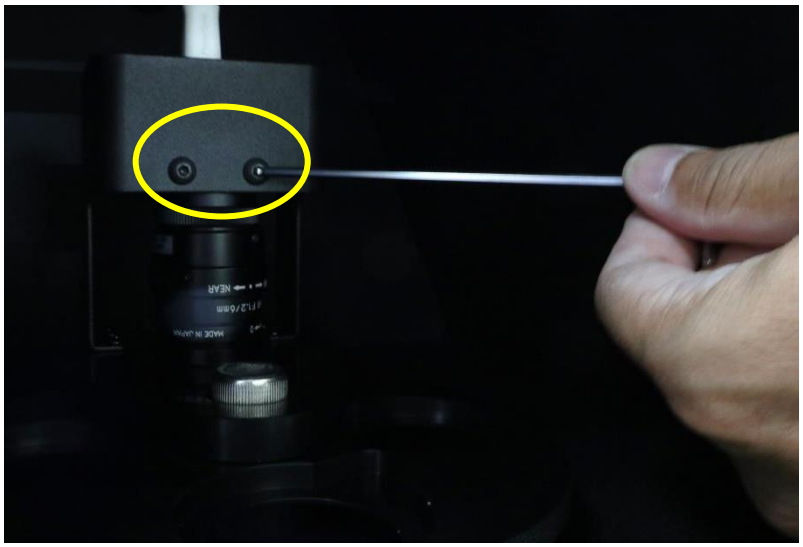
6.2 Adjust the camera for clearer image

Tool: 2.5 mm hex wrench (not provided)

Step1 Open camera door. Remove the filter to a stable place.



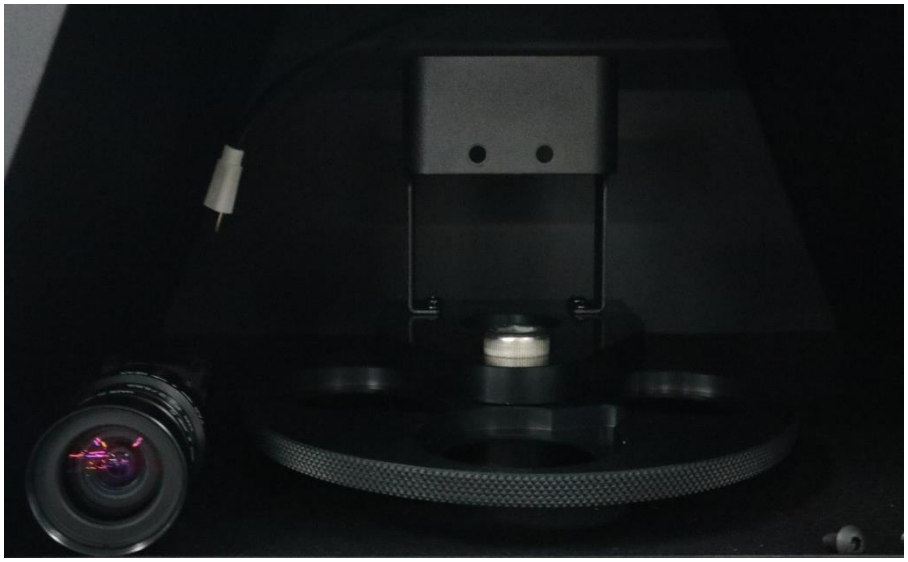
Step2 Use 2.5mm hex wrench to loosen the screws of camera holder and hold the camera to prevent damage to the lens.



Step3 Pull out the camera gently.

Step4 Disconnect the USB port with camera.

Step5 Separate the camera with darkroom, you could use general camera cleaning kit to clean the lens and then reinstall the camera on the camera holder for clearer image.



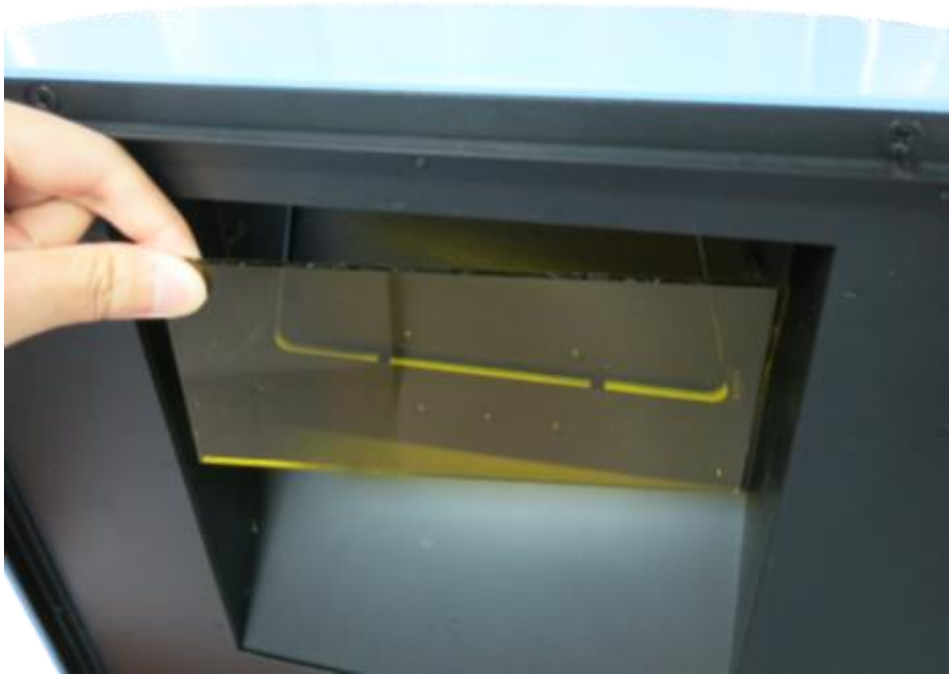
6.3 Replacing Amber Filter onto Viewing Window

Two filters (transparent filter and amber filter) are installed as default, if you did not purchase the blue light module and would like to remove the amber filter, please follow the steps below.

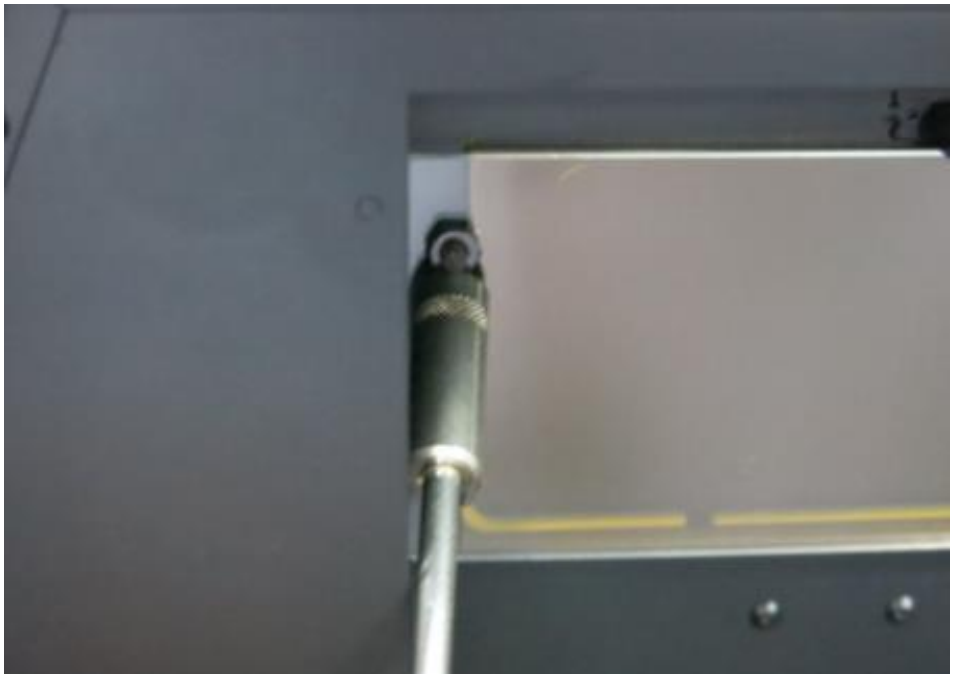
Tool: 7M/M socket wrench (not provided)

Step1 Loosen 4 nuts from the corners. Remove the transparent filter.

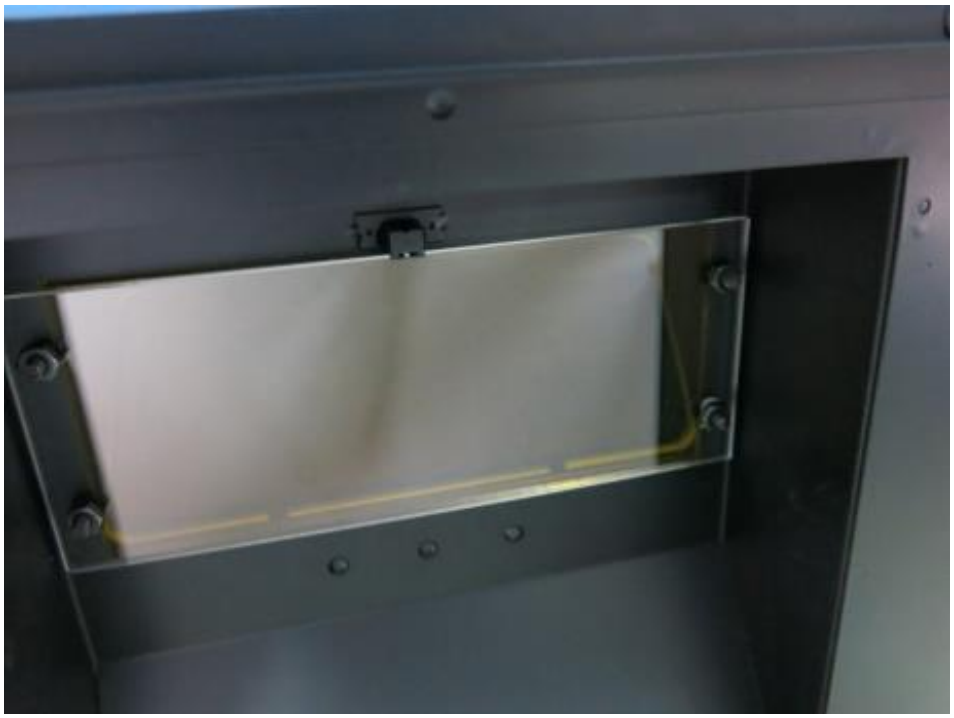
Step2 There are no screw holes on the amber filter, please put the amber filter on the inside of the bolt.



Step3 Cover the transparent filter on the amber filter, put the nuts of four corners and then use the socket wrench to tighten the nuts.



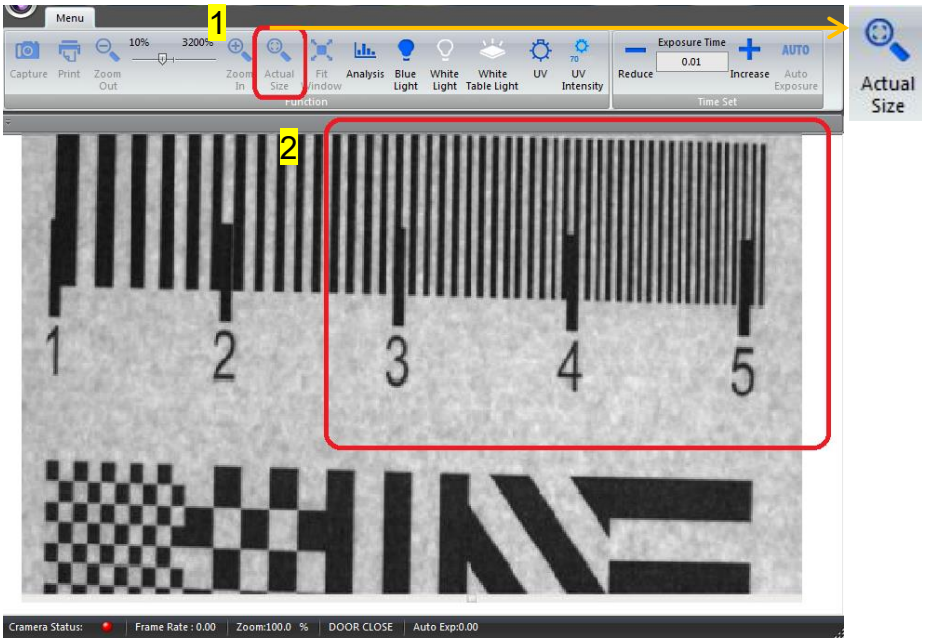
Step4 Confirm the amber filter is be fixed in the center of the viewing window.



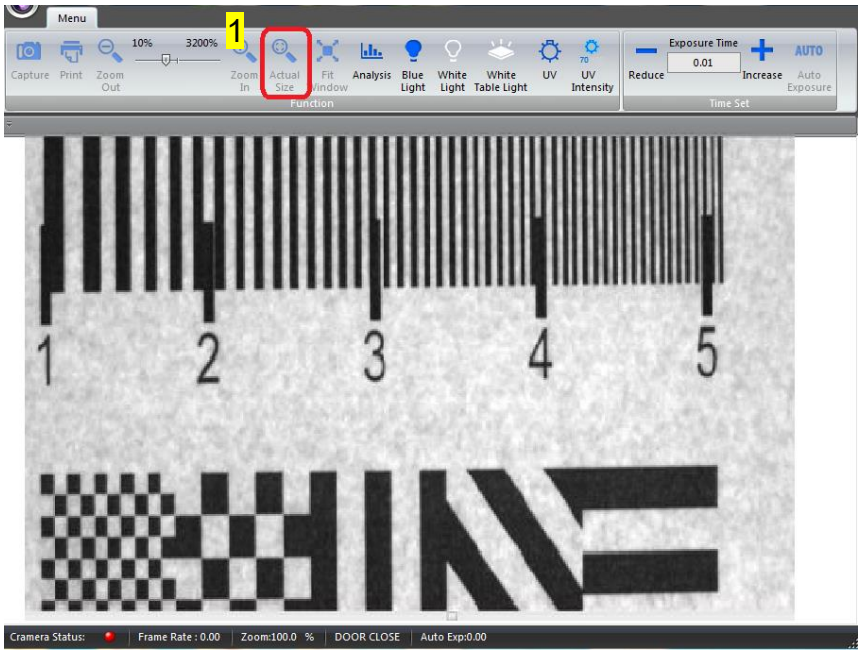
6.4 Adjust the scientific camera when out of focus

Adjust the scientific camera for out of focus only under SmartView Pro 1200 Imager System pc version to operate, please refer to SmartView Pro 1200 Imager System pc version instruction manual to install the software on your computer.

Step1 Adjust the maximum iris and lock it to fix. Put the fluorescent ruler on the UV table. Turn on the UV light and press “Actual Size” button (as box 1). Adjust the focus ring to make the picture (as box 2) clear and without losing focus.



Step2 Put fluorescent ruler on the UV table again. Turn on the UV light and press “Actual Size” button (as box 1) to make sure the picture is clear and focus on. Fix the focus ring after adjust.



Section 7 Ordering Information

MODELS & APPLICATIONS	
Cat. No.	**Description**
UVCI-1100	SmartView Pro 1100 Imager system, standard version
UVCI-1101	SmartView Pro 1100 Imager system, standard version, high UV performance
Filter (for camera) ****Ordered Separately***	
UVCI-1000-EB	Optical EtBr Filter 610nm for SmartView Pro & Simple Imager System
UVCI-1000-SG	Optical SYBR Green Filter 520nm for SmartView Pro & Simple Imager System
MBE-IMG-F3	SmartView amber filter,560nm
MBE-IMG-F4	SmartView amber filter,580nm
Note: *For use with UV light as activation source, optical filters should be used. For use with blue light as activation source, amber filters should be used.*	

ACCESSORIES	
Cat. No.	**Description**
UVCI-1000-BL	Blue Light Module for SmartView Pro Imager System, 1100 & 2100 series
UVCI-1000-WL	White Light Plate 21x26cm for SmartView Pro Imager System, 1100 & 2100 series
UVCI-1000-F1	Viewing window Amber filter, 560nm for SmartView Pro Imager System, 1100 & 2100 series
UVCI-1003	SmartView Pro UV protection shield, for 1100 & 2100 series
UVCI-1004	SmartView Pro lens filter stand, can hold up to 4 lens filters, for 1100 and 2100 series

Section 8 Warranty

Major Science warrants apparatus of its manufacture against defects in materials and workmanship, under normal service, for ***one year from the shipping date to purchaser***. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. Consumable parts (UV lamp and UV filter) are not covered by our warranty. Major Science's liability under the warranty is limited to the receipt of reasonable proof by the customer that the defect is embraced within the terms of the warranty. All claims made under this warranty must be presented to Major Science within one year following the date of delivery of the product to the customer.

Headquarters:
Major Science Co., Ltd.

Contact Information:
Main Office :
No. 156, Sec. 1, Guoji Rd., Taoyuan Dist.,
Taoyuan City 33061,
Taiwan

T/ +886-3-3762878
F/ +886-3-3761310
E-mail：info@majorsci.com

Headquarters:
Major Science Co., Ltd.

Contact Information:
Main Office :
No. 156, Sec. 1, Guoji Rd., Taoyuan Dist.,
Taoyuan City 33061, Taiwan

T/ +886-3-3762878
F/ +886-3-3761310
E-mail：service@majorsci.com, info@majorsci.com

Appendix: Install Camera Software

* To install the program, please log in as an administrator on the computer. Please refer to the Web link to change the account of computer:

a. For Windows® XP

http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/windows_security_runas.mspx?mfr=true

b. For Windows® 7

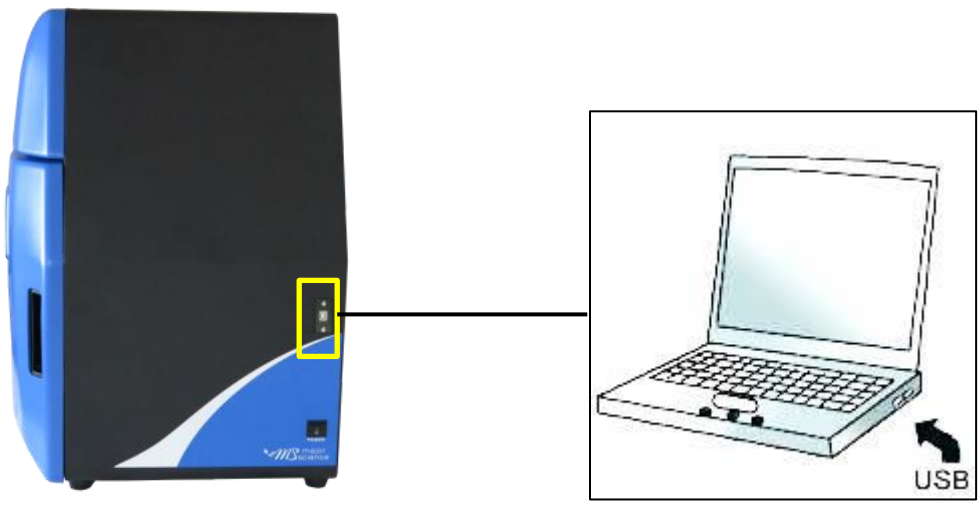
http://windows.microsoft.com/en-hk/windows7/installing-programs-frequently-asked-questions

c. For Windows® 8 and Windows® Vista

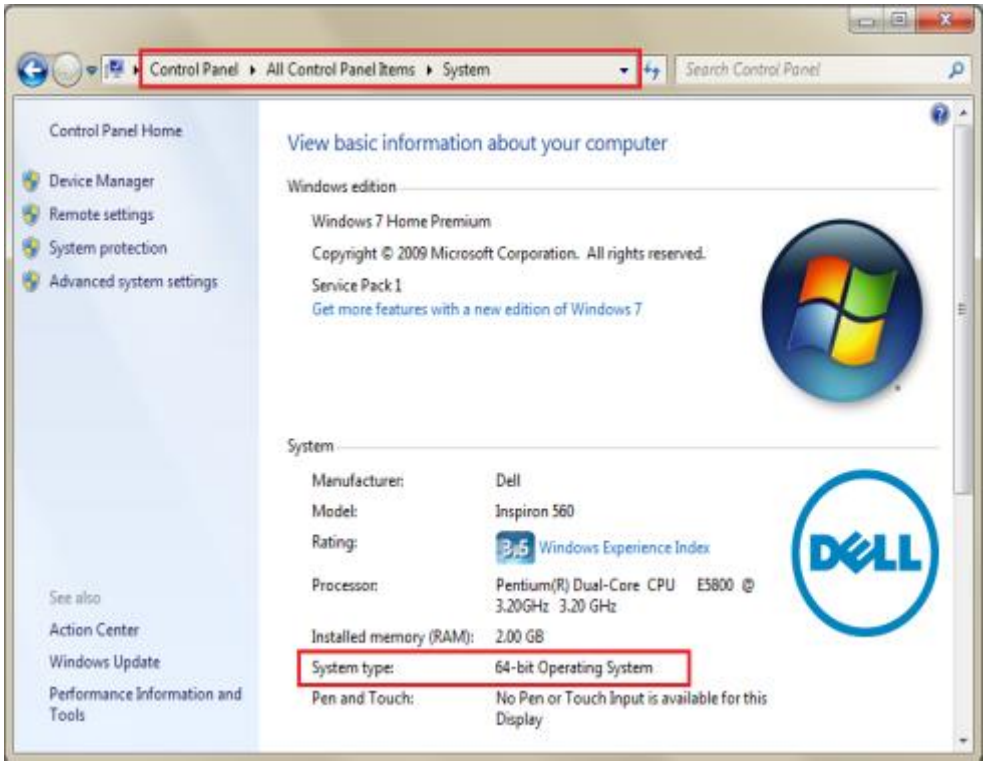
1. Go to the Search and type "Change User Account Settings" or Go to Control Panel > User Accounts and Family Safety > User Accounts.
2. Do one of the following:
   - To turn off UAC, move the slider to the Never notify position, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation. You will need to restart your computer for UAC to be turned off.
   - To turn on UAC, move the slider to choose when you want to be notified, and then click OK. If you're prompted for an administrator password or confirmation, type the password or provide confirmation

I. Install camera software

Step1 Turn on the SmartView Pro Imager System and connect the SmartView Pro Imager System with the computer by USB wire.

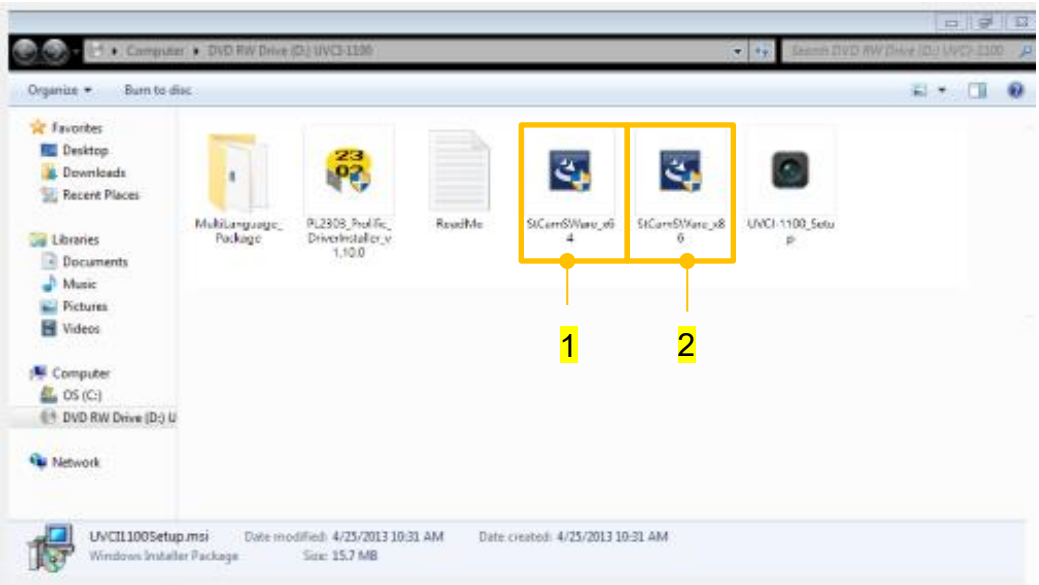


Step2 Check computer system type.

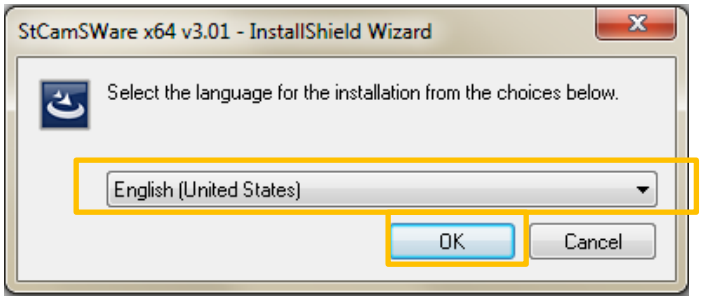


Step3 Install camera setup software.

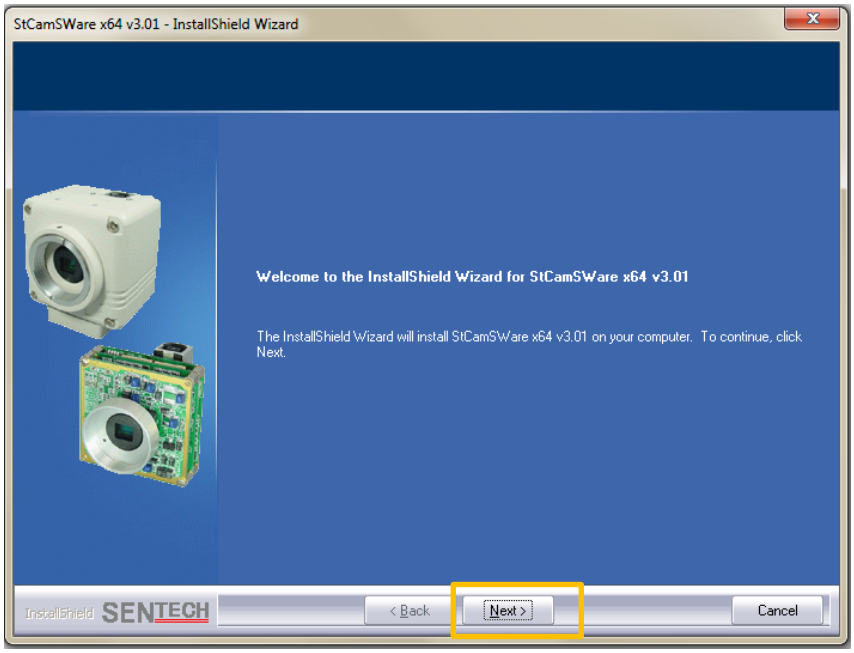
Note: Five files are included in the software disk. Please accord to your system type to install camera setup software.
System type A. 32 bit : use “StCamSWare_x86” (as box 1)
System type B. 64 bit : use “StCamSWare_x64” (as box 2)



Step4 Select the language for your location.

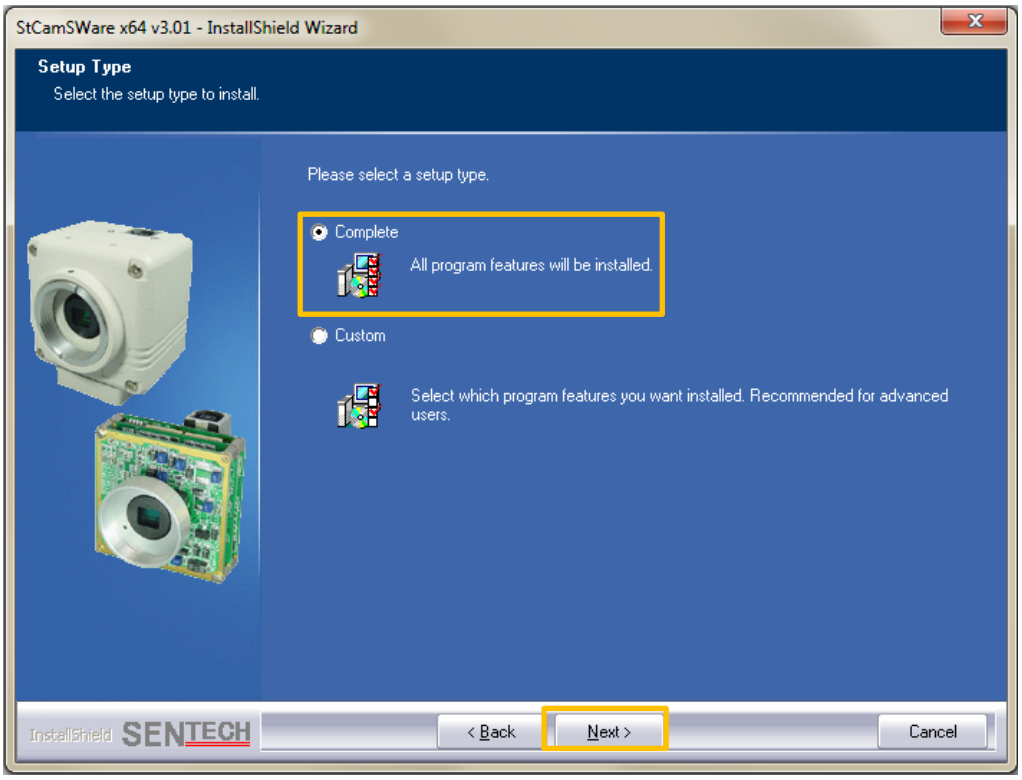


Step5 Click “Next” to start install the program.

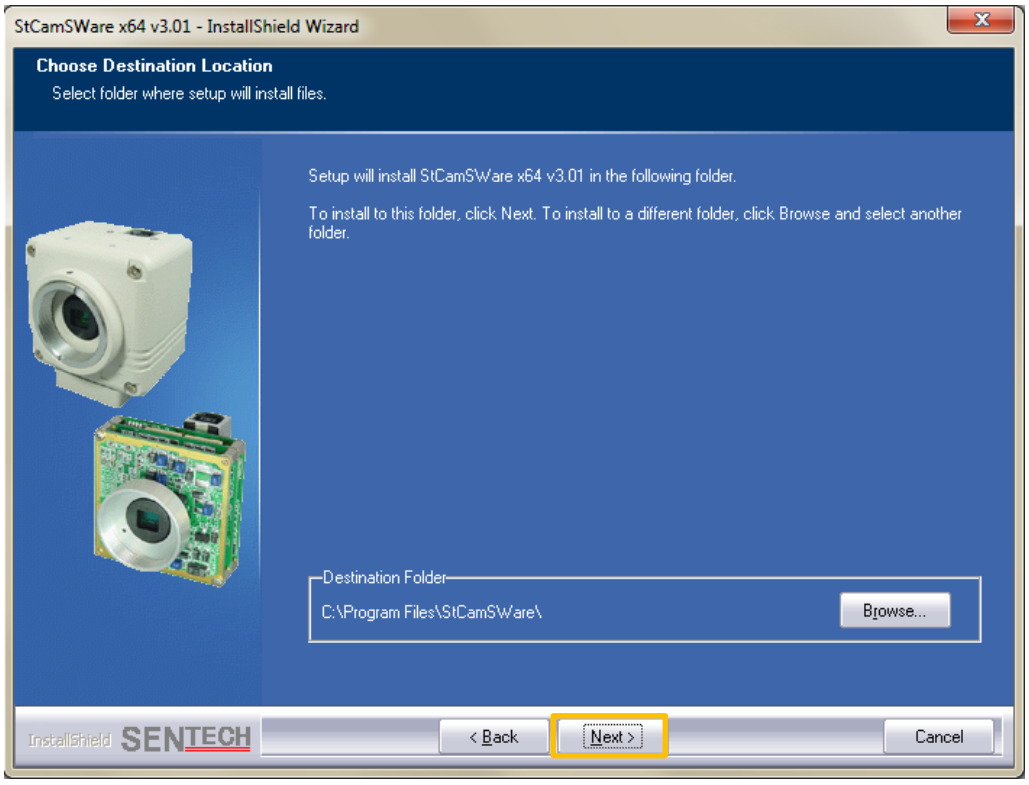


Step6 Check the license agreement then press the “Next” button.

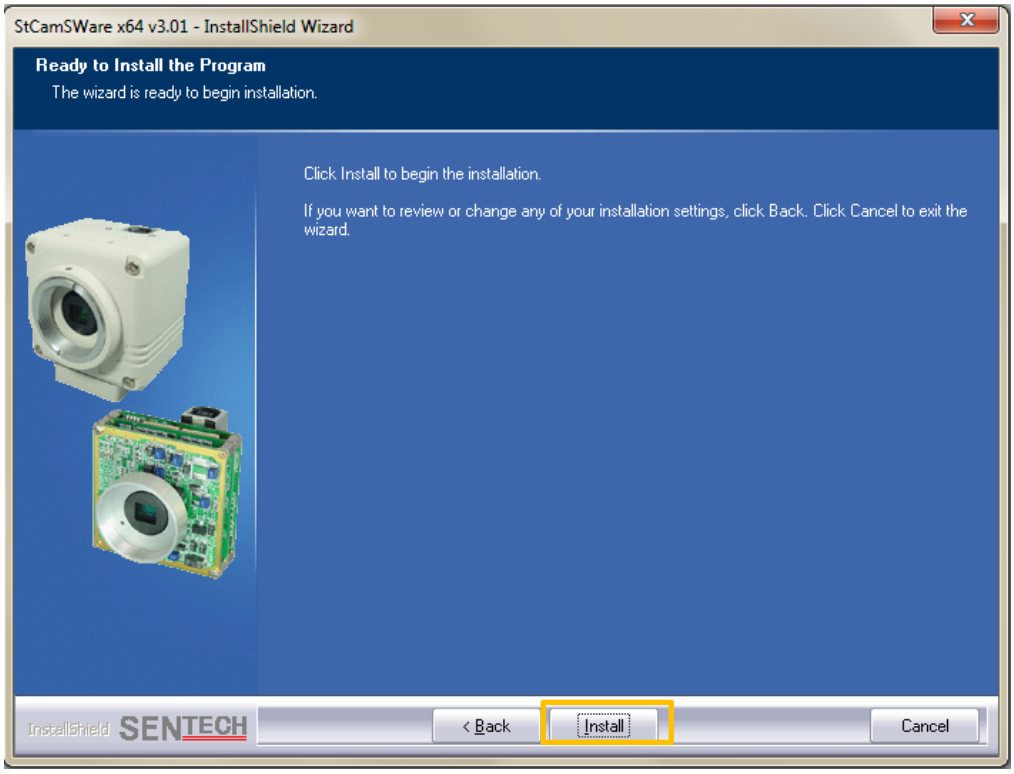
Step7 Select the “Complete” type to setup and then press the “Next” button.



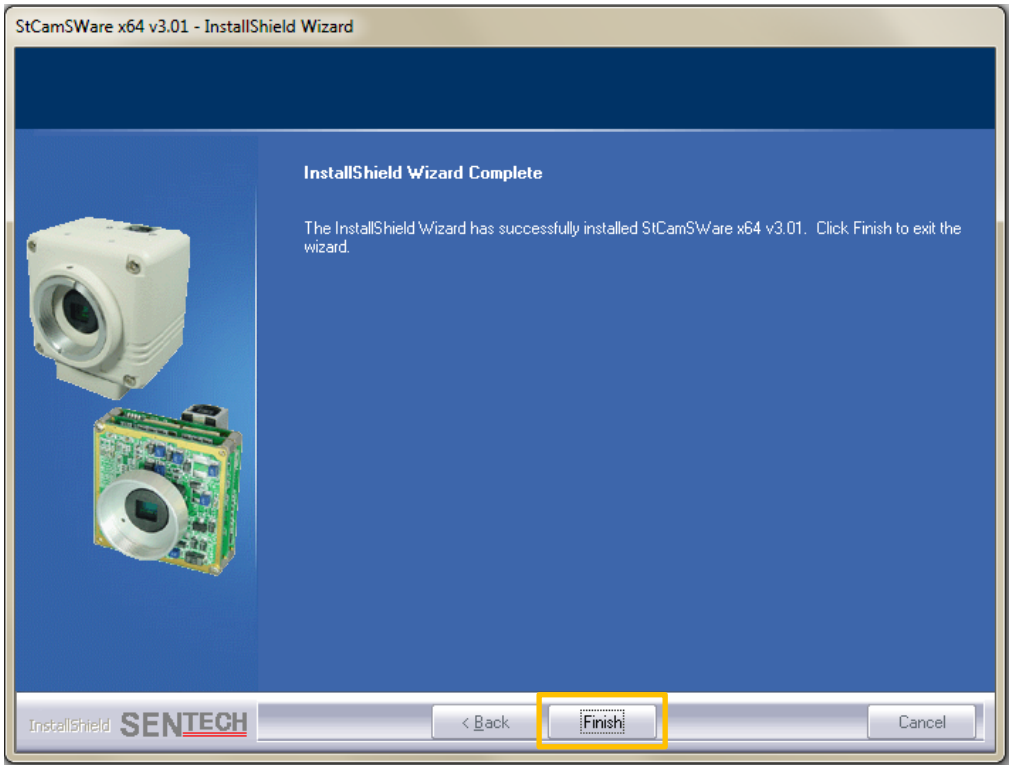
Step8 Save this program in destination folder.



Step9 Click install to begin the installation.

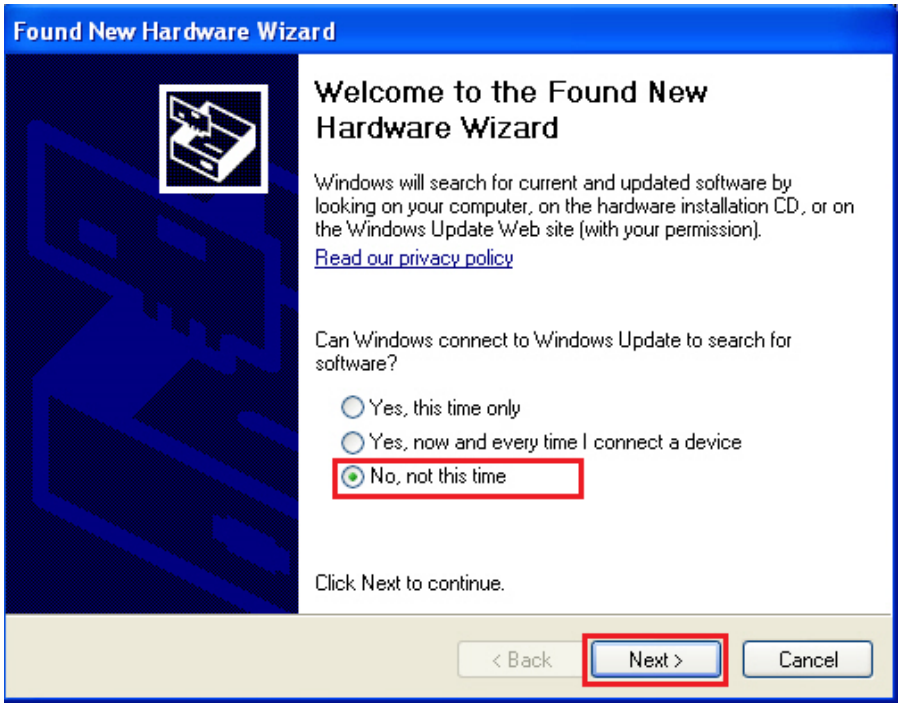


Step10 Complete the installation program.

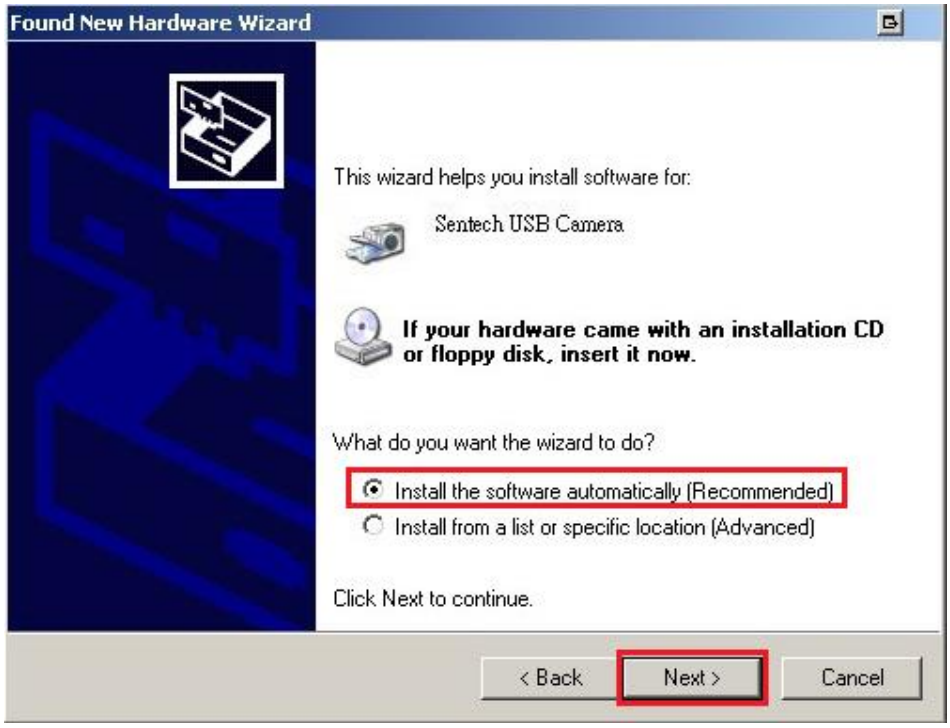


※Note: Under Windows XP system, if you want to change the USB port from computer/laptop with camera, a found new hardware dialog of the system will pop up. Please install the hardware as following to proceed.

1. Select “No, not this time” then press “Next” button.



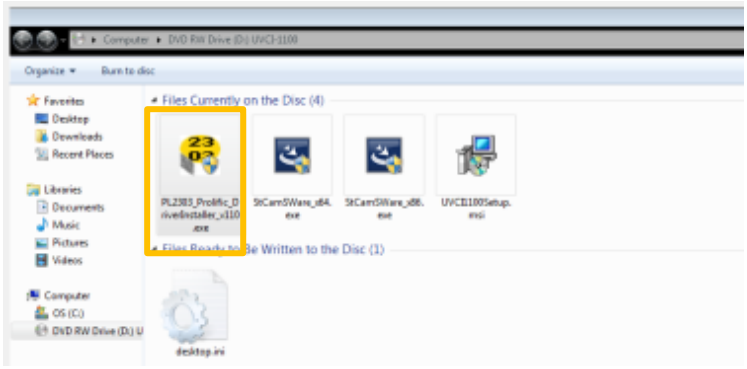
2. Select “Install the software automatically” then click “Next” button.



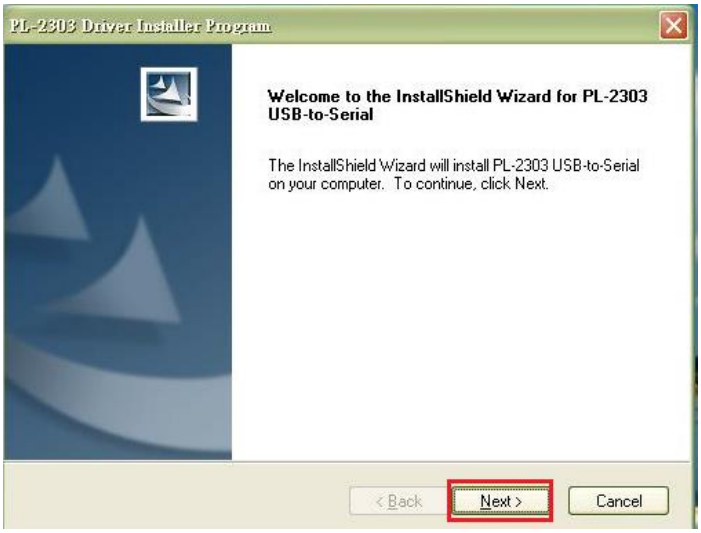
3. Press “Continue Anyway” to finish the hardware wizard.

II. Install light signal software

Step1 Select PL2303 setup program.



Step2 Install PL2303 setup program.



Step3 Complete the installation program.