

# WIX-multiPHOTO Multi-functions Gel Doc

## Instruction Manual

### Catalogue Numbers

10703001



**WIX TECHNOLOGY BEIJING CO.,LTD**

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## Safety Warning



The imaging systems should be used only by trained personnel who know the health risks associated with the UV radiation normally associated with these instruments. Users should be trained on the appropriate personal protective equipment for working with UV light to minimize UV exposure.

LED (light-emitting diode) HAZARD. Removing the protective covers and (when applicable) defeating the interlock(s) may result in exposure to the internal LED. LED can burn the retina, causing permanent blind spots. To ensure safe LED operation:

- Never look directly into the light beam.
- Wear proper eye protection and post a warning sign at the entrance to the laboratory if the LED protection is defeated for servicing.
- Keep the lid open for as little time as possible. When there is a need to open the lid, BLUE light must be off. Or must wear blue light protection glasses and avoid prolonged exposure to BLUE light.

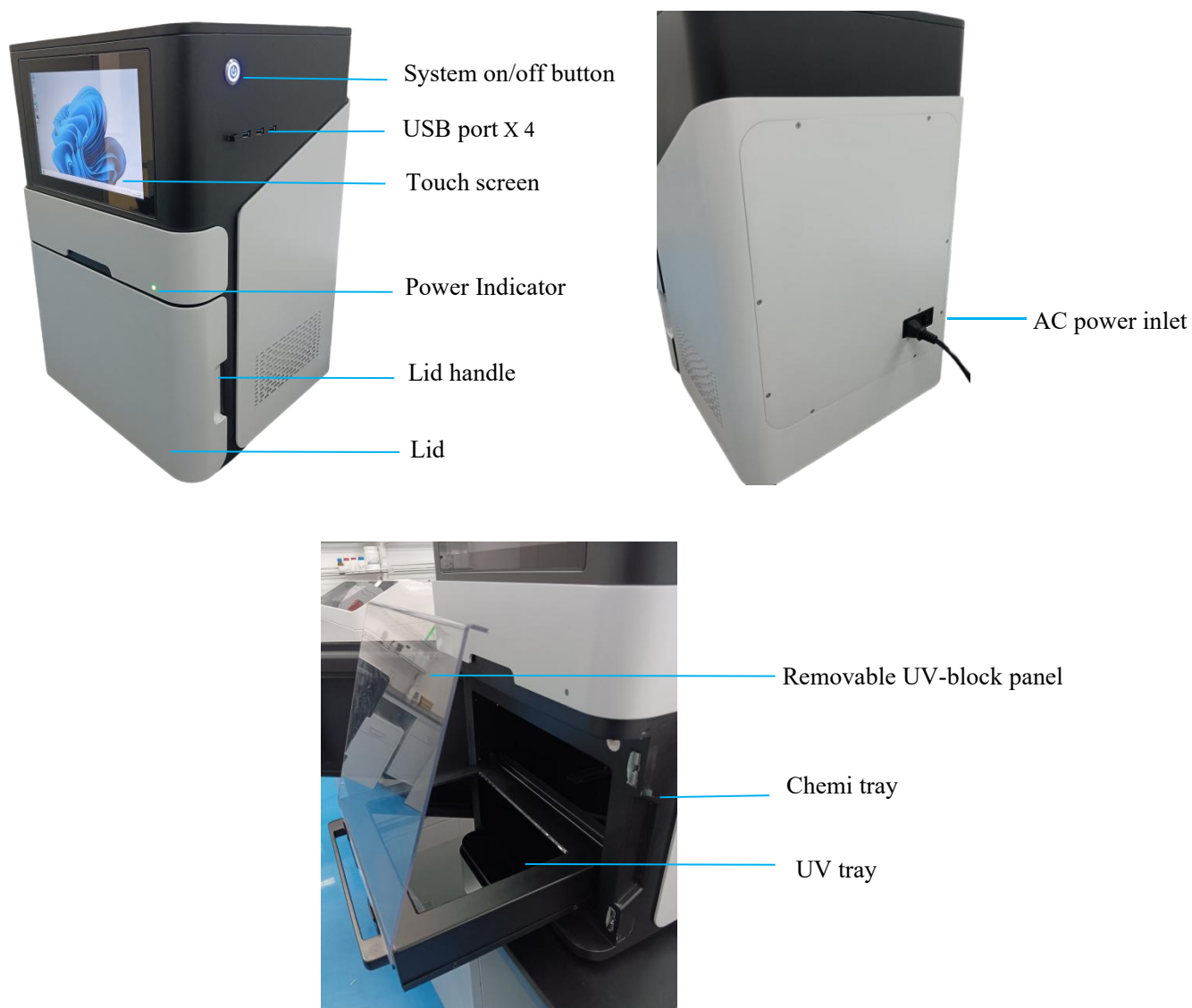


- WIX-multiPHOTO is an electromechanical instrument, and the general safety precautions should be applicable to electrical equipment during operation. If the user does not follow the instructions in this manual, electric shock and personal injury may occur.
- The power cord of WIX-multiPHOTO must be connected to a qualified power supply (110-240V/500W/6A) with a grounded socket. Using an unmatched power supply may cause electric shock and fire accidents.
- If an un-grounded socket is used, which shall be replaced by a grounded socket by a qualified electrician according to local electrical codes.
- Do not make any electrical changes or intentional damages to WIX-multiPHOTO, otherwise it will cause a dangerous situation and the quality guarantee of the instrument will be invalid.
- If the power cord is broken, worn or disconnected, please contact WIX TECHNOLOGY BEIJING CO., LTD immediately for replacement.
- Do not touch the switch and power cord with wet hands.

## 1. Introduction

WIX-multiPHOTO Gel Doc, an integrated fully automatic gel imaging system, based on technology of advanced scientific grade cameras and lenses, accommodating both automatic and manual imaging modes, and a built-in computer for fast sample imaging.

### 1.1 Front and back components



System on/off button: Turn on/off the touch screen.

USB port: for external devices such as USB drives, mice, keyboards, etc.

Touch screen: Replacement of computer.

Power Indicator: Indicate the power supply status of the equipment. When the equipment is powered on, the indicator light will illuminate. When the power is cut off, the indicator light will go out.

Lid handle: Open the lid.

Lid: Provide a shading condition for the experiment.

AC power: 100-220V~50Hz/60Hz.

Removable UV-block panel: avoid exposure to UV radiation.

Chemi tray: supported for taking photos of Ecl chemical imaging samples.

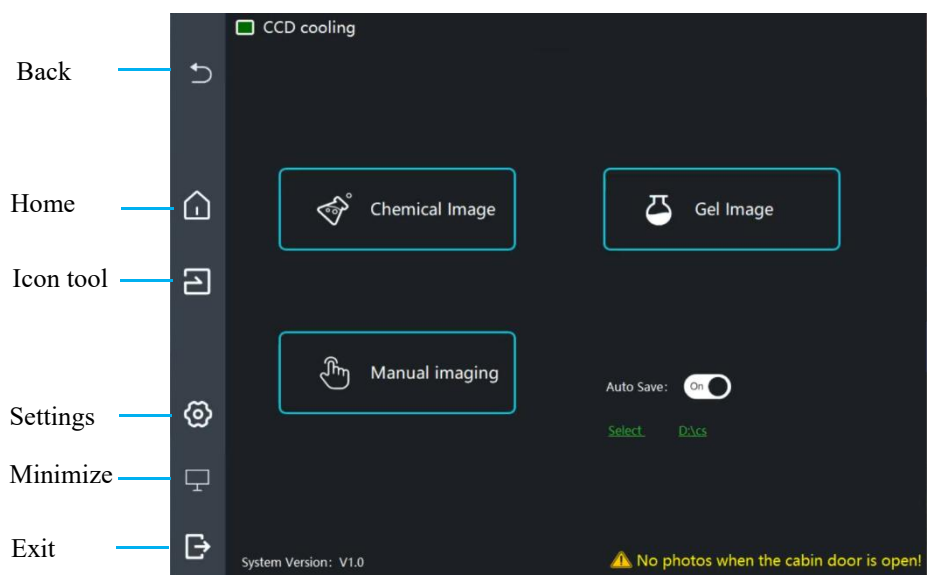
UV tray: supported applications of DNA stain of EB, Gel Red, etc.

## 1.2 Specifications

Model	WIX-multiPHOTO Multi-functions Gel Doc
Sensor model	SONY IMX492
Sensor size	4/3 inch
Pixel size	4.63μm x 4.63μm
Effective resolution	4164x2796
Maximum image area	UV gel: 16x21cm/ chemiluminescence: 11X8.5cm
Image resolution	11.7 MP
Exposure time	60μs-3600sec
Shutter type	Electronic Rolling Shutter
Lens aperture	F0.95
Excitation source	Double LED white light
Screen size	12.1 inch capacitive touch LCD screen
Quantum efficiency	90% (peak)
Full Well Capacity (1×1, 2×2, 3×3)	65ke-
A/D	14bit
Readout Noise	1.6-1.2e- @High gain mode 6.9-5.2e- @Low gain mode
Dark Current	0.002e- /pixel/sec@-20°C 0.005e- /pixel/sec@-20°C
Cooling System	Dual Stage TEC cooler, about -35°C below ambient
Optic Window Type	AR+AR High Quality Multi-Layer Anti-Reflection Coating
Transmission UV	365nm/302nm
Blue wavelength	470nm
Emission filters	2 included (standard), 4 optional
Dimensions (mm)	375×400×585 (L×W×H)

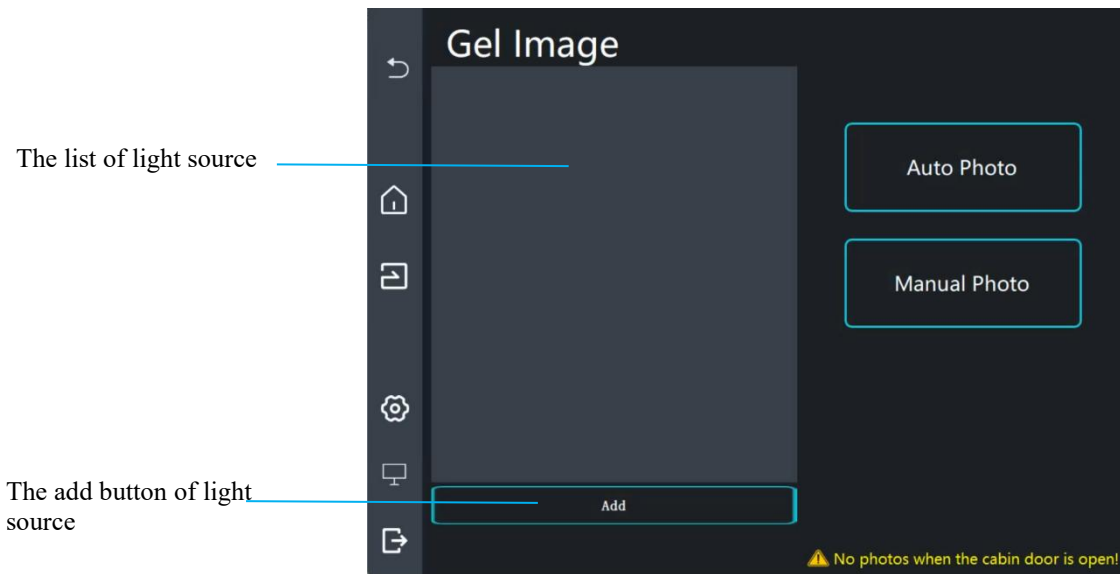
## 2. Software

### 2.1 Home



1. Back: Navigate to the previous page.
2. Home: Navigate to the home.
3. Icon tool: Navigate to the page of image processing. Further details about the image processing page will be provided later.
4. Settings: Navigate to the page of the settings. Further details about the settings interface will be provided later.
5. Minimize: Minimize the page.
6. Exit: Exit the software.
7. CCD cooling: after powering on, the system will automatically activate the camera cooling function. A red icon indicating CCD cooling, Auto Photo and Manual Photo can't be navigated before the temperature reaching to its target. When cooling temperature is targeted, the icon's colour will be turned to green that photos can be taken now.
8. Gel Image: hit to navigate to gel documentation.
9. Chemical Image: hit to navigate to Chemical Image.
10. Manual Imaging: hit to navigate to Manual Imaging.
11. Auto save: Turn off/off auto save, allowing you to save your file locations for future use.


## 2.2 Introduction of the Gel Imaging Function

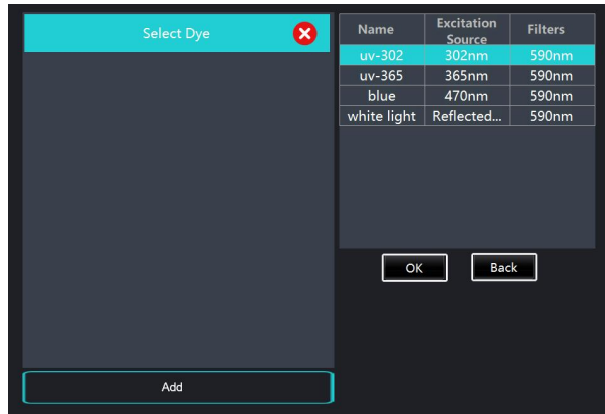



1.The list of light source: set parameters of light source and light filter.

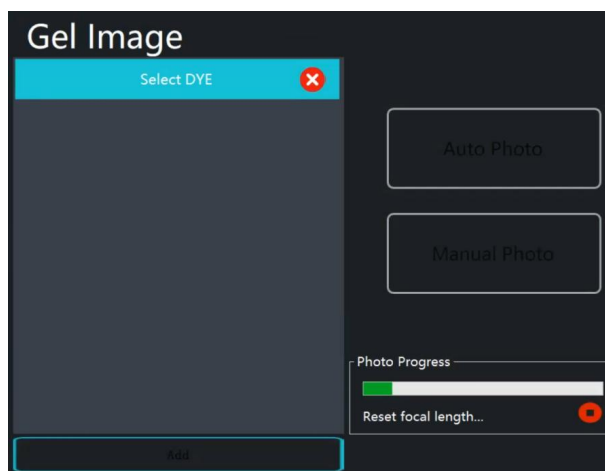


2.The add button of light source: hit for add light source and light filter. The added light source will shown inside the list, hit the relevant light source and the light source menu will be shown on its right.

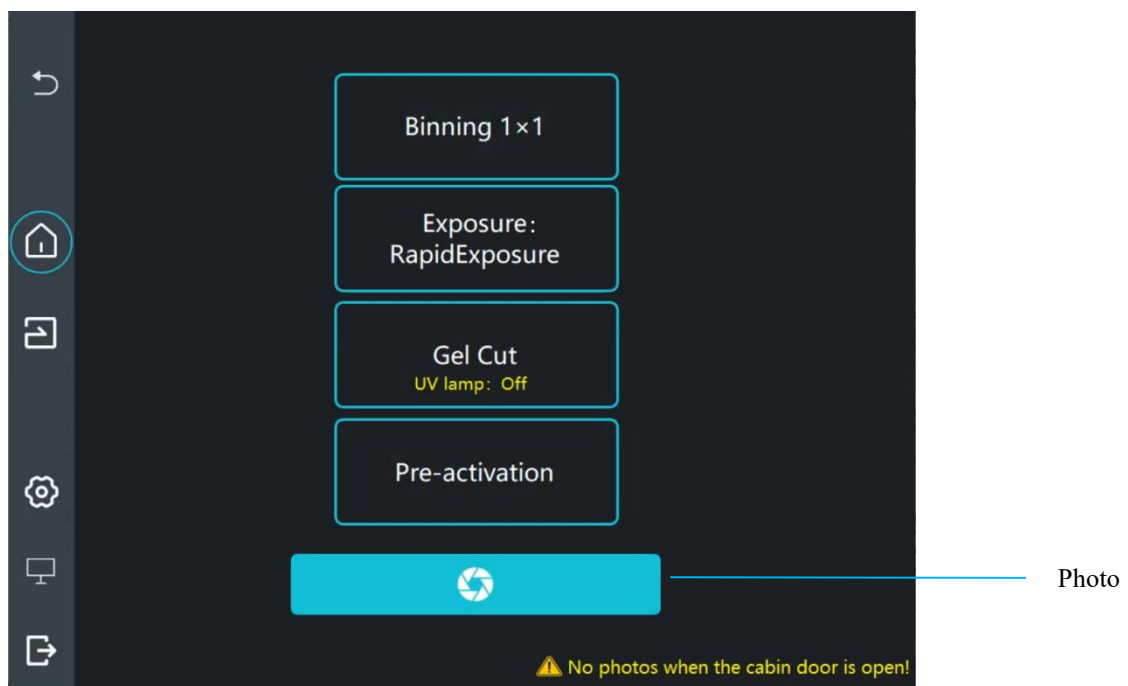
Hit the proper light source to confirm your selection. The button  is for deleting the previously set light sources. Up to four sets of light sources can be selected. When taking photos with multiple light sources, the camera will take pictures of each of the four light sources in sequence according to the preset conditions.



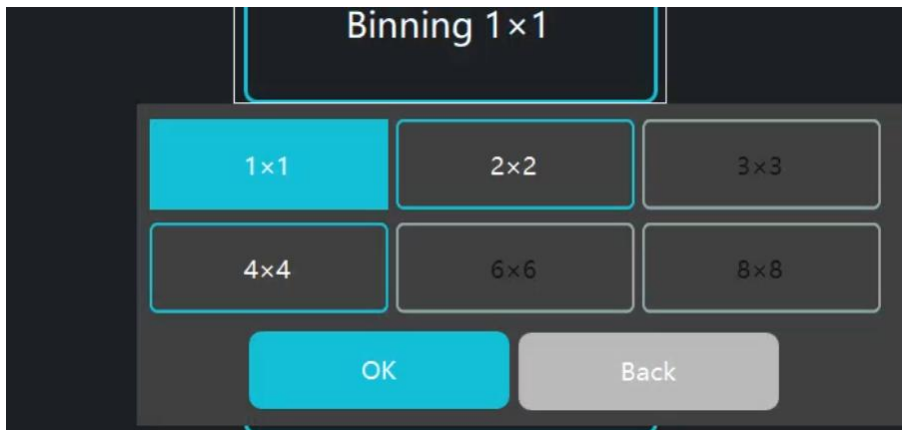
3.Auto photo: hit for taking photos automatically. The photo progress will be shown, hit  to stop.



4.Manual photo: hit for navigating to the manual photo page.



4.1 Binning: for Binning settings, three choices of 1x1, 2x2 and 4x4.

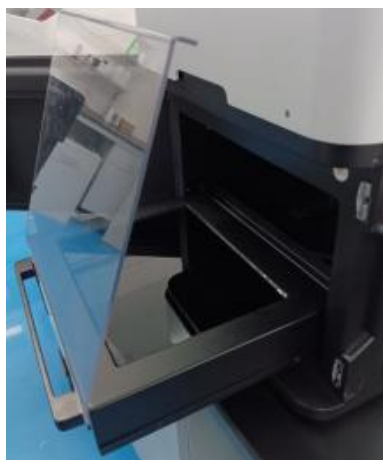


4.2 Exposure mode: for exposure settings, four choices of fast exposure, wide dynamic range exposure, overexposure and manual exposure.

Hit the manual exposure to set the exposure time and exposure gain.




4.3 Gel cut: open the lid, place the UV protection plate inside, hit the "Gel cut" button, the UV tray will light up, and if you hit again, the light will go off.

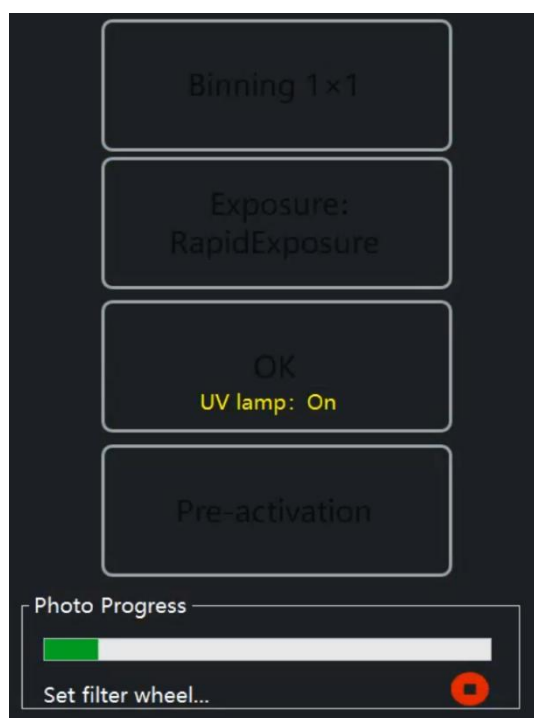


4.4 The pre-activation mode: After hit, the program will take a 5-minute countdown, the ultraviolet lamp will automatically turn on for the pre-activation of the samples.

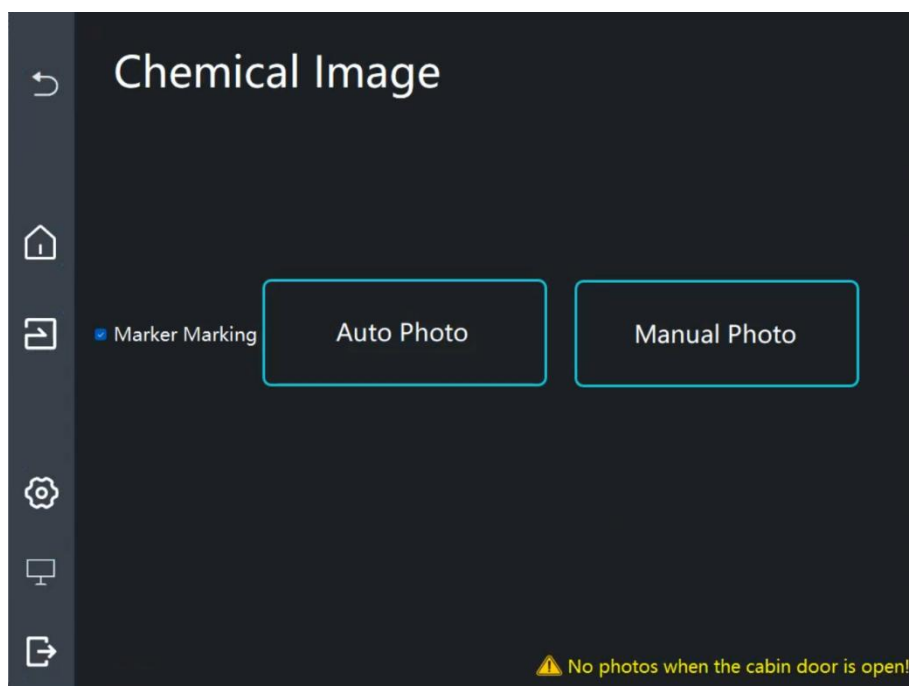
If auto photo-taking was chosen, photo will be taken after the countdown automatically. If not, you have to take a photo manually.



4.5 Photo: for taking photo, the photo will be taking upon your settings, hit  for stop.



## 2.3 Introduction of the Chemical Imaging Function




### 1. Marker Marking:

Select the marker marking, the photo will automatically generate sample images, maker images, and combined images; if the marker marking is not selected, the image will only export the sample image.

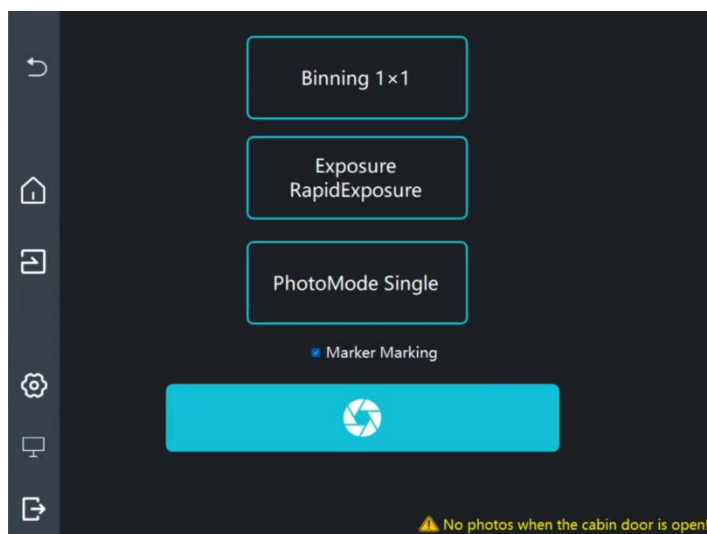
### 2. Auto Photo:

Hit for taking photos automatically. If marker markings selected, it will navigate to marker preview interface to adjust exposure time. After settings, hit OK to take photos automatically.

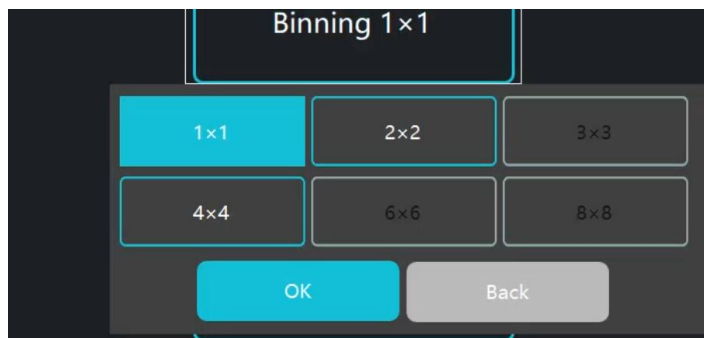
The photo progress will be shown, hit  to stop.

### 3. Manual Photo:

Hit to navigate to taking photos manually.



3.1 Binning: for Binning settings, three choices of 1x1, 2x2 and 4x4.

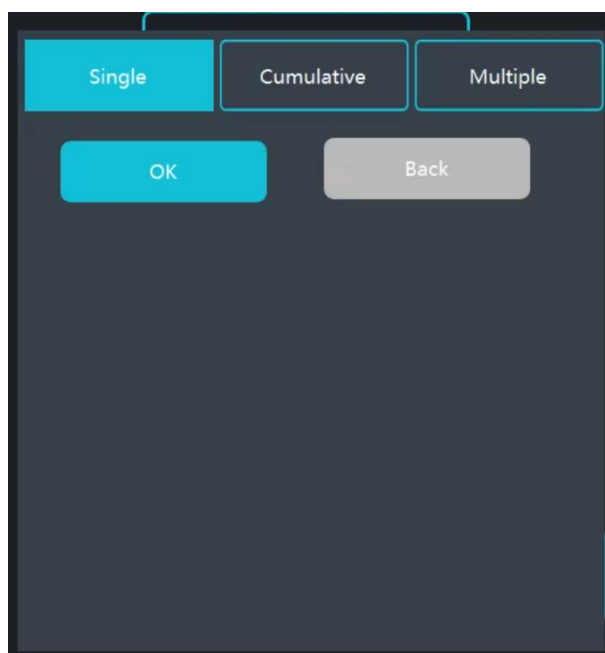


3.2 Exposure mode: for exposure settings, four choices of fast exposure, wide dynamic range exposure, overexposure and manual exposure.

Hit the manual exposure to set the exposure time and exposure gain.



3.3 Photo: hit for setting photo mode of Single, Cumulative and Multiple.




Single: only taking one photo.

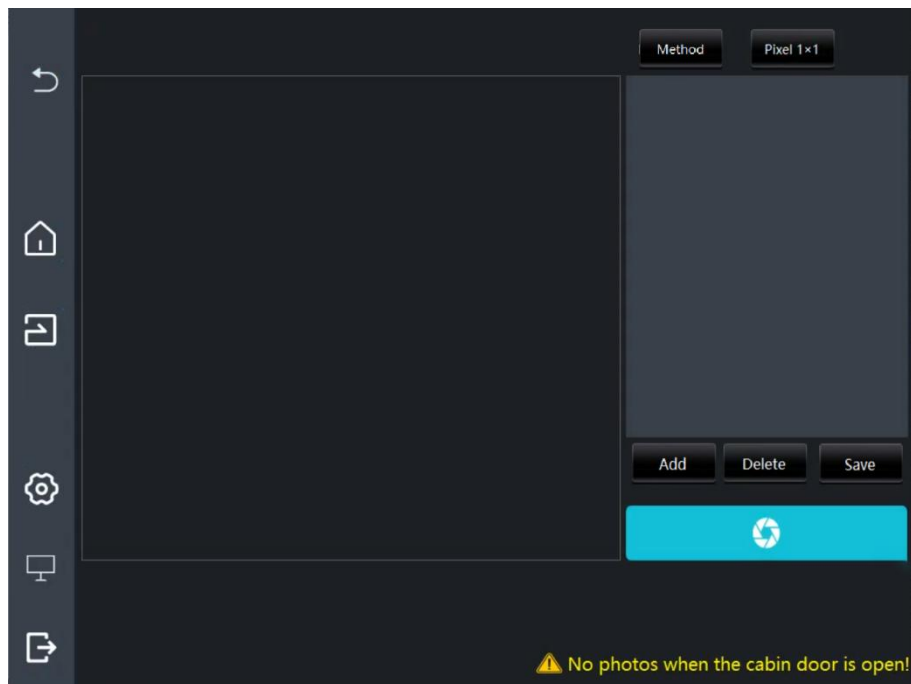
Cumulative: taking multiple photos.

Multiple: taking multiple photos, each photo can set different exposure time.



Photo: hit for taking photo, same as auto photo, marker preview fist, then, taking photos for samples, hit  for stop.

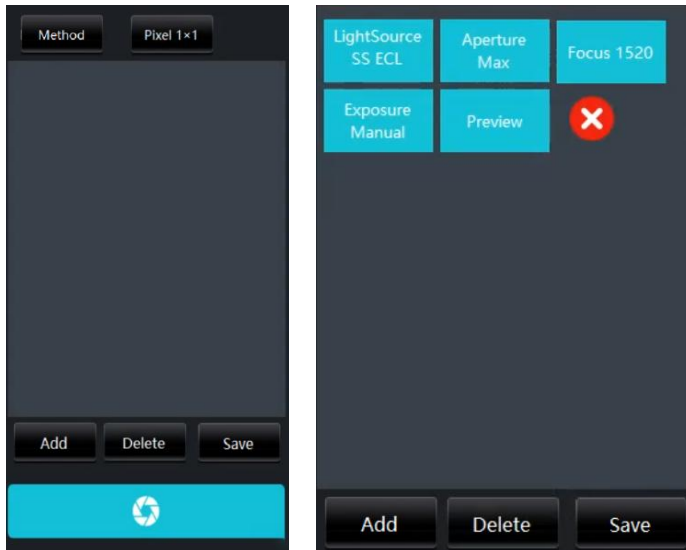
## 2.4 Introduction of Manual Imaging



Method: hit for create a new method or load previous saved methods.



Hit method, pops up a blank for settings. By selecting add "dye" to set the parameters of light source, aperture, focal length, exposure time, etc. After settings, hit to preview photos, in the mean time, parameters can be modified. Confirm preview to taking photo, it will taking photos automatically and then navigate to image settings automatically.

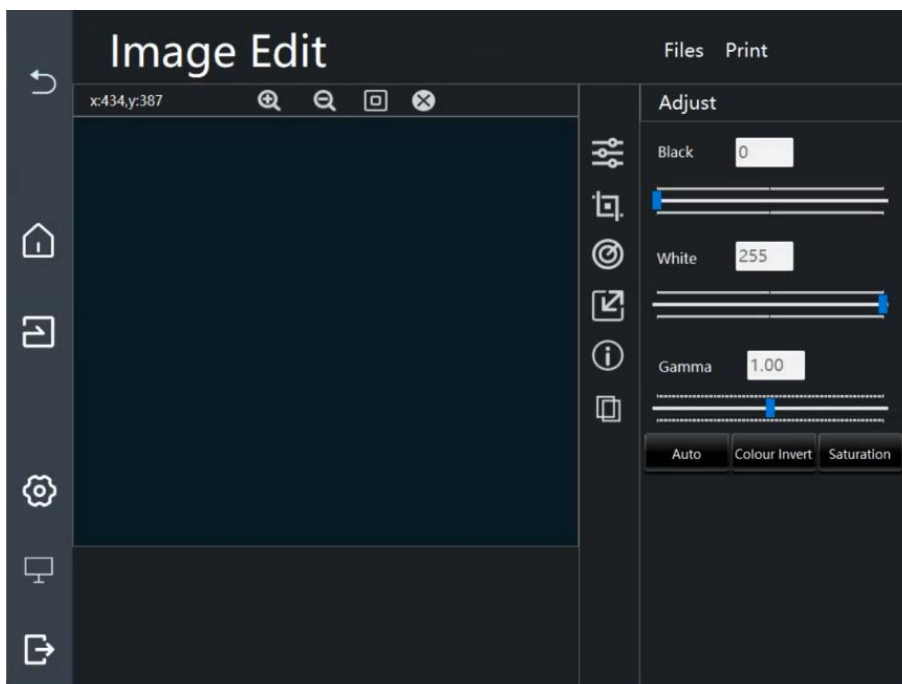


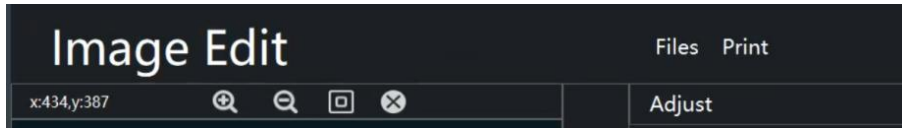
Save & delete: hit Save to save method to save the settings, hit delete to delete saved methods.



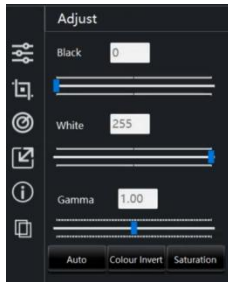
## 2.5 Image settings

After photo, will navigate to the page of image settings, can be also navigated manually.





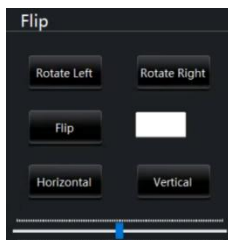
1. **Toolbar:** Includes functions such as File, Print (Print can be set to print images or reports. The printed report will save the images and the camera parameters used for taking photos in PDF format), Zoom In/Out for images, Restore Original Image, Close, and Mouse Position Coordinates.
2. **Adjust:** black/white, manual and automatic gamma. Functions for reversing the black and white of the image, and marking the over-saturated areas.



3. **Cut:** selecting and cropping images, as well as copying and pasting.



4. **Flip Button:** Counter-clockwise 90°, Clockwise 90°, custom angle flipping, horizontal flipping, and vertical flipping.



5. **Reset image size:** show current pixel and dpi. dpi can be set to save the image separately.



6. Info: Display the camera parameters and system parameters used for taking photos.

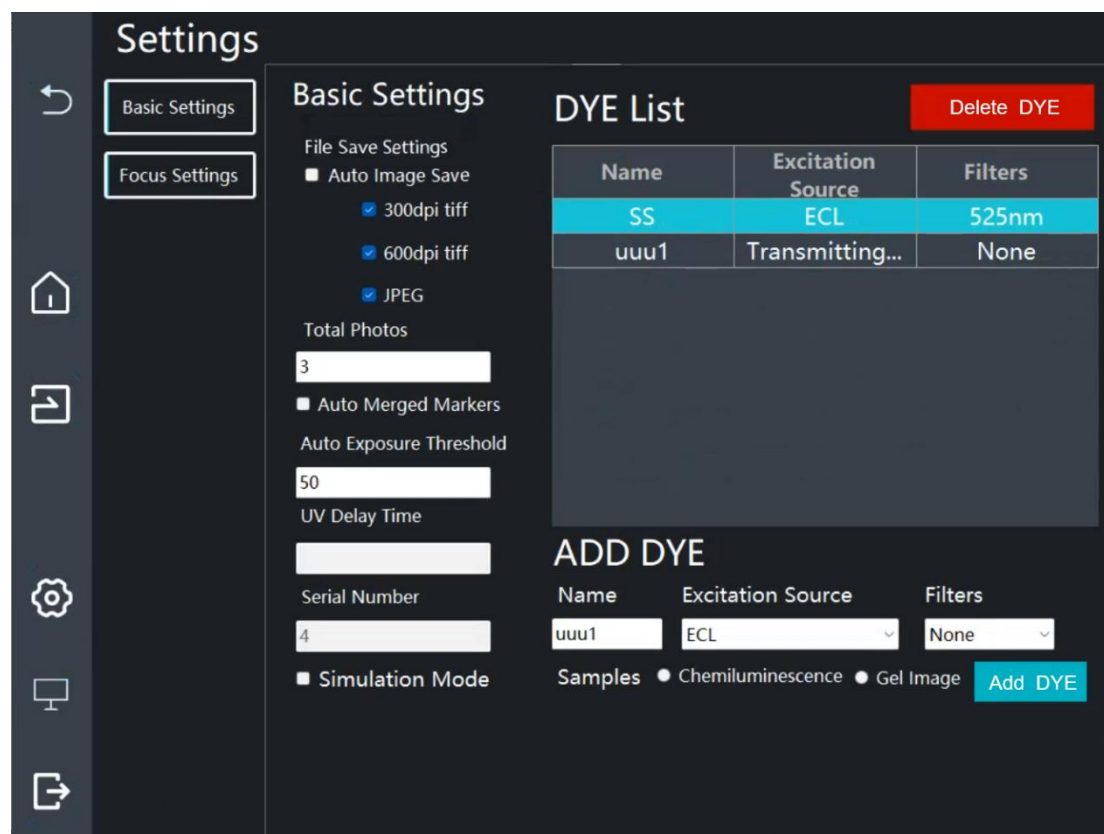
Info	
Date/Time	
Protocol Type	
Capture Type	
Protocol Name	
Pixel Merged	
Exposure Time	
Gain	
Exposure Type	
Channel Name	
Light Source	
Filters	
Aperture	
Trays	
Focus	
Calibration	
Software version	
System SN number	

7. Images Merged: adding the images of samples and marker manually, hit the merged image to merge two images into one image.

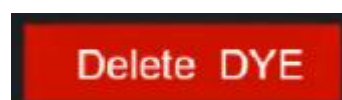
Note: The marker images should be in a white background format.

Images Merged	
<input type="button" value="Add Sample"/>	
<div style="border: 1px solid black; height: 80px; width: 100%;"></div>	
<input type="button" value="Add Markers"/>	
<div style="border: 1px solid black; height: 80px; width: 100%;"></div>	
<input type="button" value="Images Merged"/>	

## 2.6 Basic settings



1. File saving settings: Multiple saving formats for choices, 300tiff, 600tiff, and jpeg, etc. Hit the auto saving button, the images will be saved by the selected format in the corresponding folder.
2. Cumulative number of photos taken: default quantity is 3 photos.
3. Automatic marker merging: default for selection, export merged image of samples and marker automatically, if not selected, image of samples and marker will be exported separately.
4. Automatic exposure threshold: The threshold for taking photos during automatic exposure can be set (range: 1 - 255).
5. Ultraviolet delay time: None.
6. Serial number: Default.
7. Dye list: Displays the names of saved dyes, excitation light source, and filter. Settings for chemical imaging only is invalid.



Delete the saved dye information.

**DYE List** Delete DYE

Name	Excitation Source	Filters
SS	ECL	525nm
uuu1	Transmitting...	None

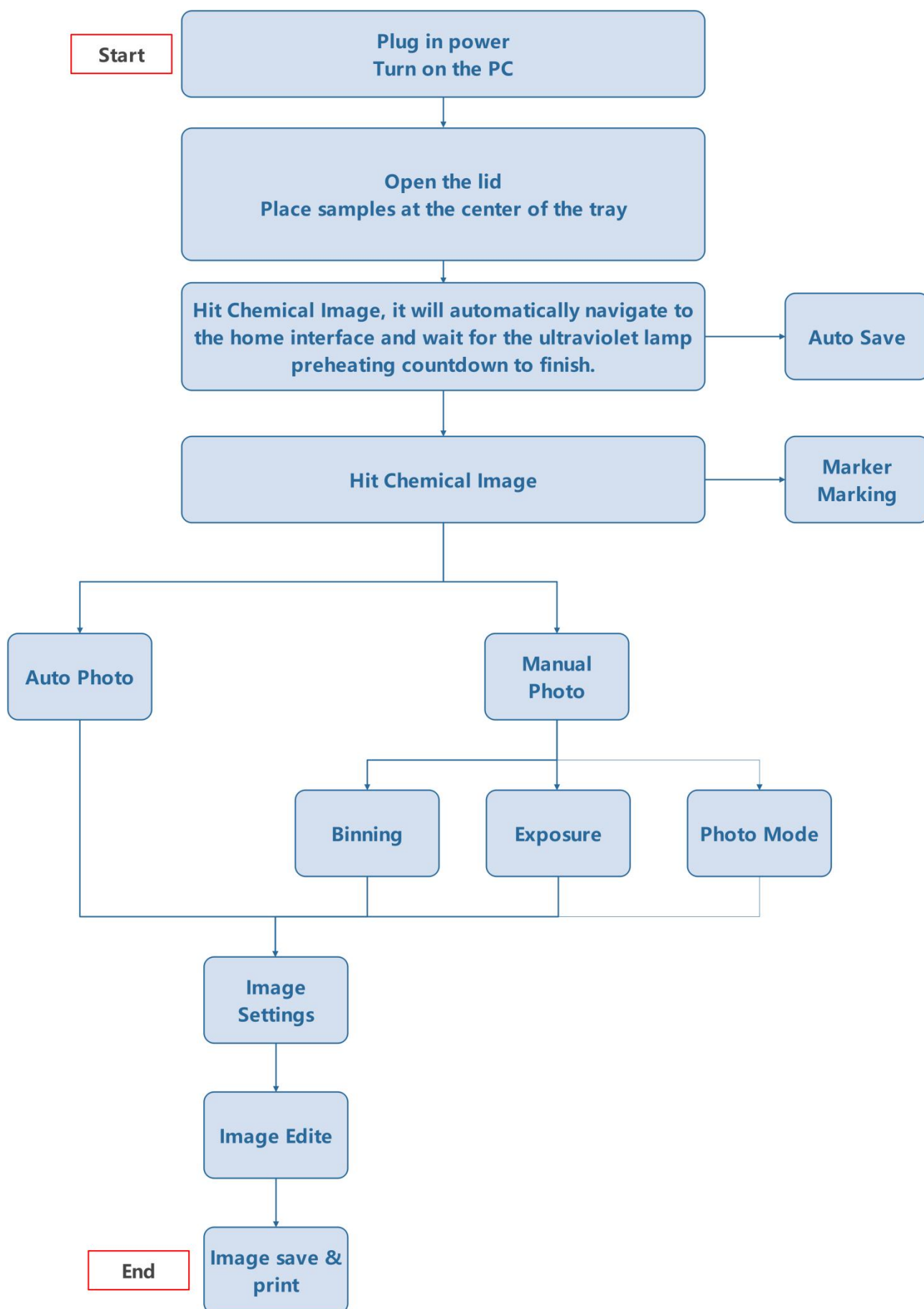
8. Add dye: Can add new dye settings. Set the combination of the excitation light sources and the filters. You can set the name of the combination, as well as the type of samples it is applied to. Settings for chemical imaging only is invalid.

**ADD DYE**

Name	Excitation Source	Filters
<input type="text" value="uuu1"/>	<input style="border-bottom: 1px solid black;" type="text" value="ECL"/>	<input style="border-bottom: 1px solid black;" type="text" value="None"/>

Samples  Chemiluminescence  Gel Image Add DYE

## 2.6 Basic process



### **3. Quality guarantee**

- (1) The warranty is 1 year since the date of sales.
- (2) The warranty excludes the following situations otherwise it is charged.
  - a. No presentation of warranty card and invoice.
  - b. The invoice is revised.
  - c. Improper operation or accident factors.
  - d. The damage is caused by the user's repair.
  - e. Out of the warranty, the instrument is still in usage after repair.





Makes research and development simple



WIX TECHNOLOGY BEIJING CO., LTD

Tel: +86 010-89797600

E-mail: [sales@wixscientific.com](mailto:sales@wixscientific.com)

Website: <http://www.wixscientific.com/>

Add: No. 8 Building DLTC Sci-Tech Park,  
No.738 Changliu Road Machikou Town,  
Changping District Beijing P.R.C.

Postcode: 102202