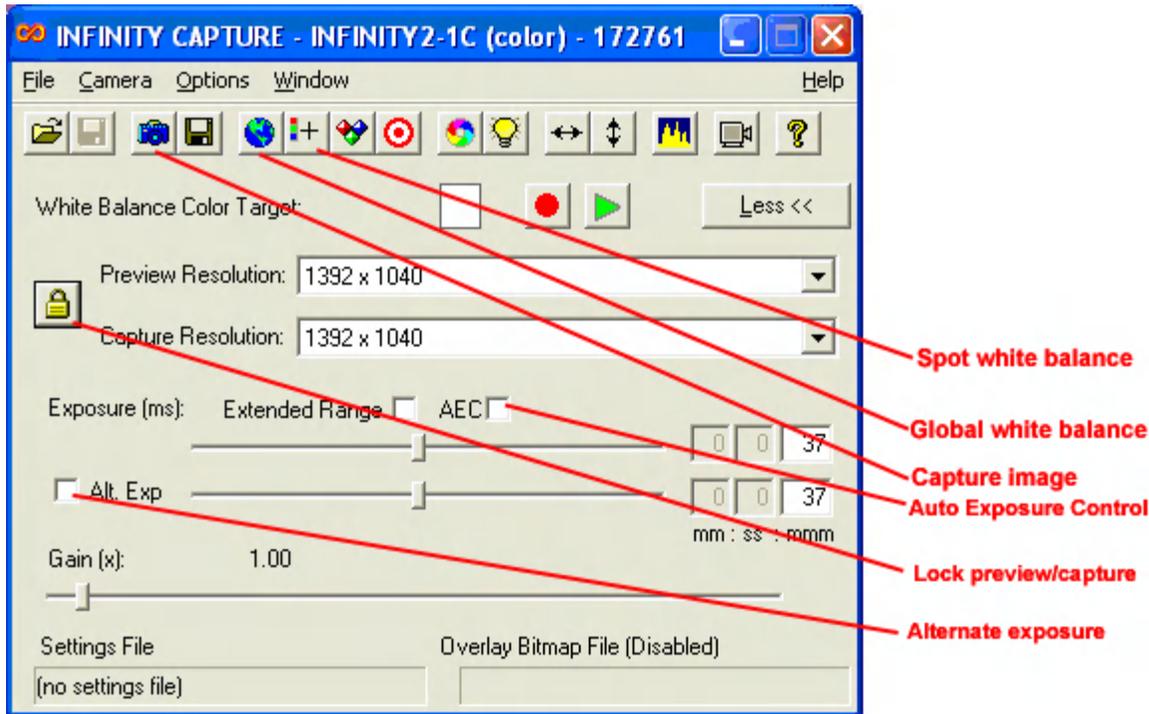


Infinity CAPTURE Software Installation and Use

The following is a quick setup guide and use reference for the basic software package 'Infinity Capture' that is included with each Lumenera camera. The same operational details apply to the TWAIN interface that is also included with each camera. The supplied software disc has the full manual of operations.

****** NOTE: IMPORTANT!! FIRST INSTALL THE SOFTWARE before connecting camera ******



1) SETUP:

- Set the PREVIEW resolution to the maximum in order to see all of the CCD area (otherwise only a portion of the ccd will be displayed):
 OPTIONS menu > Select preview zoom level to fit screen (typ. 25% or 50%)
 - If the preview is set to a lower resolution than the capture resolution the captured area is not fully displayed and only a portion of the CCD gets used.
- If the 'lock' symbol is displayed as locked (as seen above) then the captured image will be the same field of view as the preview window image.
- If the 'lock' symbol is unlocked then the captured image will be the selected image size and only that portion of the sensor field of view will be saved.

2) WHITE BALANCE:

- The SPOT white balance is used to set white balance based on a particular area on the preview image. Selecting this icon will change the cursor to a cross when moved across the preview screen. Left click where you want the white balance

to be adjusted.

- The GLOBAL white balance bases color correction on the entire preview image so it is best used to set lighting without a specimen in the field-of-view. A white piece of paper can be used as a reference surface when setting GLOBAL white balance.

3) EXPOSURE:

- If the captured picture exposure is to be different than the preview exposure, than the ALT EXP box is checked and the captured exposure will be controlled by the ALT EXP level slider. Unchecking the ALT EXP box (default setting) will ensure the preview and capture are the same (unchecking updates the level to that of the preview)
- The AEC box selects whether Auto-exposure is performed (box checked). Typically this is used unless a series of pictures are going to be stitched together in which case a manual exposure setting will ensure all images are the same.
- The EXTENDED RANGE box will increase the possible exposure times possible which may result in very long exposures but may be necessary in instances of low light level.
- The GAIN control is similar in function to the ISO speed setting on film cameras. The default is 1.0. If you achieve good image capture with reasonable exposure times, than this is the recommended setting. If exposure times are too long or light levels too weak than the gain should be increased. Doubling the GAIN reduces the exposure time by 50% but, like camera film, as the gain is increased the picture noise (graininess) increases. With a little experimentation a good compromise setting of GAIN and exposure time can be found.
- Click on the CAPTURE icon (little camera icon) to capture the preview image

4) AUTO-SAVING:

- If a sequence of pictures will be taken, the AUTO-SAVE feature will eliminate the need to name each file as it is captured. The file will be saved with the name and an image sequence number will be attached to the name (e.g image0001.jpg, image0002.jpg, image0003.jpg, etc).

- To setup AUTO-SAVE:

- 1) OPTIONS menu>auto-save
- 2) Assign a destination folder for the images
- 3) Assign a file name (e.g. pictureXYZ)
- 4) Assign a file save type (e.g. typically use jpg format)
- 5) Set the increment start number (e.g. 1)
- 6) Set the number of digits to follow the name (e.g. 2)
- 7) Enable AUTO-SAVE (select the auto-save check box)

In the above setup example the first captured image will be 'pictureXYZ01.jpg'
The next will be 'pictureXYZ02.jpg', the third will be 'pictureXYZ03.jpg', etc.

- AUTO-SAVE will remain active until you deselect the auto-save checkbox so don't forget otherwise all subsequent images will be saved to the assigned folder

SYSTEM TROUBLESHOOTING:

- **COLOR WRONG.** This is usually caused by an incorrect white balance (WB) setting. Reset the WB by placing a white piece of paper (or use a white balance reference card available from a camera supply store) in place of the specimen and use the white balance control icon of the camera to set. The screen should display a light greyish image if it has set correctly. Refer to the camera guide for specifics on WB setting options.

- **IMAGE QUALITY GRAINY.** Commonly caused by insufficient light on the subject or the lense **aperature control** is too far closed. Try to increase the light available or open the aperature more. If the camera gain control is set too high it will also cause the grainy image. Try reducing the gain and increase the exposure time to improve the image quality. Another option is to use the '**binning**' settings of the camera resolution selection. Binning combines adjacent pixels to form larger effective pixels with greater light capture capability for improved low light capture. Resolution is reduced when binning is used because of the combined pixels but frame refresh rate increases. Try reducing to a binning setting and review the image.
- **NO PICTURE.** Camera not connected to the computer or the USB port is not fully USB2.0 compliant. Try using another USB port or install an external powered USB2.0 hub. This is an occasional problem with some laptops.
- **CAN'T FOCUS IMAGE.** Make sure that the lense is fully threaded into the camera. If an extender lense is used make sure it is fully threaded onto the lense and camera. Also, the zoom lense may be too close or too far from the specimen. Make sure that you are between the 6.8" - 18" design limits. For most pill applications set the distance from the bottom of the lense to stage surface at 8". This will provide sufficient zoom range to accommodate most pill sizes.
- **VIGNETTING.** Vignetting (corners clipped, porthole image) is due to using the lense closer to the subject the 6.8" (spec). The lense will typically work closer than this, even to <6" in most cases for added magnification but vignetting will occur and if too close the system will no longer be parfocal.
- **PARFOCALITY.** The lense/camera combination is designed to be in focus through-out the zoom range (parfocal). Make sure that the lense is fully threaded into the camera. If the extender lense is used make sure it is fully threaded onto the lense and camera. If the lense is too close (<6.8") or too far (18") from the subject it may not be possible to achieve parfocality.
- **LIGHTING.** Different light sources will change the white balance values as will changing intensity settings. White balance should always be reset using the 'white balance' when changing lighting sources or intensity values. As an example if your light source is halogen, increasing intensity will shift the color toward the blue spectrum and reducing intensity will shift toward the red spectrum and affect the captured image color. Set the light intensity first, then adjust the white balance.

If all of the above do not resolve the problem contact us at either 916-880-8575 or 408-888-8177 M-F 8am-5pm PST or by web: info@oem-optical.com.