

Scion VisiCapture

Scion TWAIN 1394 Camera Import

Scion Corporation
82 Worman's Mill Court
Suite H
Frederick, MD 21701 USA
Phone (301) 695-7870
Fax (301) 695-0035
<http://www.scioncorp.com>

| | |
|---|-----------|
| GETTING STARTED | 4 |
| <i>Introduction.....</i> | <i>4</i> |
| <i>Features</i> | <i>4</i> |
| <i>System Requirements</i> | <i>4</i> |
| <i>VisiCapture Installation.....</i> | <i>4</i> |
| <i>Scion TWAIN 1394 Camera Import Installation</i> | <i>5</i> |
| <i>Notes on the Scion TWAIN 1394 Camera Import Module.....</i> | <i>5</i> |
| USING SCION VISICAPTURE AND TWAIN 1394 CAMERA SOFTWARE | 6 |
| <i>Camera Detection.....</i> | <i>6</i> |
| MENUS | 7 |
| FILE MENU | 7 |
| <i>Acquire Full Image</i> | <i>7</i> |
| <i>Acquire Selected Image.....</i> | <i>7</i> |
| <i>Save As...</i> | <i>7</i> |
| <i>Binary (.BIN).....</i> | <i>7</i> |
| <i>Raw Pixel Data (.RAW).....</i> | <i>7</i> |
| <i>Bitmap (.BMP)</i> | <i>7</i> |
| <i>Tagged Image File Format (.TIF).....</i> | <i>8</i> |
| <i>Save Selection As...</i> | <i>8</i> |
| <i>Page Setup...</i> | <i>8</i> |
| <i>Print.....</i> | <i>8</i> |
| <i>Quit</i> | <i>8</i> |
| IMAGE MENU | 9 |
| <i>Start Live Capturing</i> | <i>9</i> |
| <i>Snap.....</i> | <i>9</i> |
| <i>Multi-Frame Process</i> | <i>9</i> |
| <i>Show Properties...</i> | <i>9</i> |
| <i>Settings.....</i> | <i>10</i> |
| <i>Gain.....</i> | <i>10</i> |
| <i>Contrast.....</i> | <i>10</i> |
| <i>Black</i> | <i>10</i> |
| <i>Exposure</i> | <i>10</i> |
| <i>Live Rate</i> | <i>11</i> |
| <i>Capture Rate.....</i> | <i>11</i> |
| <i>Image Depth.....</i> | <i>11</i> |
| <i>Color Balance</i> | <i>11</i> |
| <i>Gamma</i> | <i>12</i> |
| <i>Red Gain</i> | <i>12</i> |
| <i>Green Gain</i> | <i>12</i> |
| <i>Blue Gain</i> | <i>12</i> |
| <i>Red Boost.....</i> | <i>12</i> |

| | |
|-----------------------------------|----|
| Blue Boost..... | 12 |
| AWB | 12 |
| <i>Multi-Frame</i> | 12 |
| Accumulation Option..... | 13 |
| Frames..... | 13 |
| <i>Camera Statistics</i> | 13 |
| Reset..... | 14 |
| <i>Camera Info</i> | 14 |
| Camera | 14 |
| Revision | 14 |
| Serial Number | 15 |
| CCD | 15 |
| Width | 15 |
| Height..... | 15 |
| Depth..... | 15 |
| <i>Configuration Select</i> | 15 |
| <i>Name</i> | 15 |
| <i>Presets</i> | 15 |
| <i>Preview</i> | 15 |
| <i>Bin</i> | 15 |
| <i>Test Pattern</i> | 15 |
| HELP MENU | 16 |
| <i>Scion On The Web</i> | 16 |

Getting Started

Introduction

This manual describes the Scion VisiCapture and Scion TWAIN 1394 Camera Import programs for Mac OS X. The programs support the Scion Monochrome and Color FireWire cameras.

Please take a few moments to read through this manual before you begin using the programs, as it should answer some questions that you may have. Please contact Scion Corporation should you encounter difficulty at any time, or if you have any questions.

Features

The program Features include:

- Allows frame capture, providing scientific quality color and grayscale video images using Scion Monochrome and Color Firewire cameras.
- Allows for setting of Gain, Contrast and Black level.
- Gamma control with a range of values.
- Exposure control from .010 seconds up to 100 seconds.
- Frame rates and image depth can be set via menus.

System Requirements

To use the program, you need:

- An Apple Macintosh G4 or better computer running Mac OS X 10.4 or higher
- Scion Monochrome and Color Firewire cameras
- 256 Mb of RAM (512 or more Mb recommended)
- FireWire or IEEE-1394 port
- TWAIN support requires a program that complies with the TWAIN 1.6 Spec.

VisiCapture Installation

Installing the VisiCapture program should only take a few minutes. Please follow the steps below:

1. Insert the “Scion Camera Software CD” into the CD-ROM or DVD drive.
2. A window containing the contents of the CD will appear. If it does not then double-click the “Scion CD” icon located on the Desktop.
3. Double-click the “VisiCapture” folder.
4. Double-click the “visicapture.pkg.tar.gz” file.
5. It will expand into “visicapture.pkg” located on the desktop.
6. Double-click the “visicapture.pkg” file located on the desktop. The installer will start.
7. Click the Continue button.
8. Click Continue after reading the license agreement.

9. You must agree to the terms of the license agreement to continue.
10. Select the destination disk and click the Continue button.
11. Click Install to start the installation.
12. The installation may take a few minutes.
13. After the install is complete click the Close button.
14. The file “visicapture.pkg” may now be deleted from the desktop.
15. By default the program is installed in the “Applications” folder under the “VisiCapture” folder.
16. Upon launch the VisiCapture program and it will automatically start capturing.

Scion TWAIN 1394 Camera Import Installation

Installing the Scion TWAIN 1394 Camera Import Module should only take a few minutes. Please follow the steps below:

1. Insert the “Scion Camera Software CD” into the CD-ROM or DVD drive.
2. A window containing the contents of the CD will appear. If it does not then double-click the “Scion CD” icon located on the Desktop.
3. Double-click the “TWAIN” folder.
4. Double-click the “sfwtwain.pkg.tar.gz” file.
5. It will expand into “sfwtwain.pkg” located on the desktop.
6. Double-click the “sfwtwain.pkg” file located on the desktop. The installer will start.
7. Click the Continue button.
8. Select the destination disk and click the Continue button.
9. Click Install to start the installation. The installation may take a few minutes.
10. After the install is complete click the Close button.
11. The files “sfwtwain.pkg.tar.gz” and “sfwtwain.pkg” may now be deleted from the desktop.
12. All programs that have support for TWAIN will now have the ability to capture with the Scion FireWire Cameras.
13. In Photoshop 6.0 or higher, select “Import” from the “File” menu. From this menu choose “Scion 1394 Camera Import”. The module will then open.
14. From the “Image” menu select “Start Live Capturing” to start capturing.

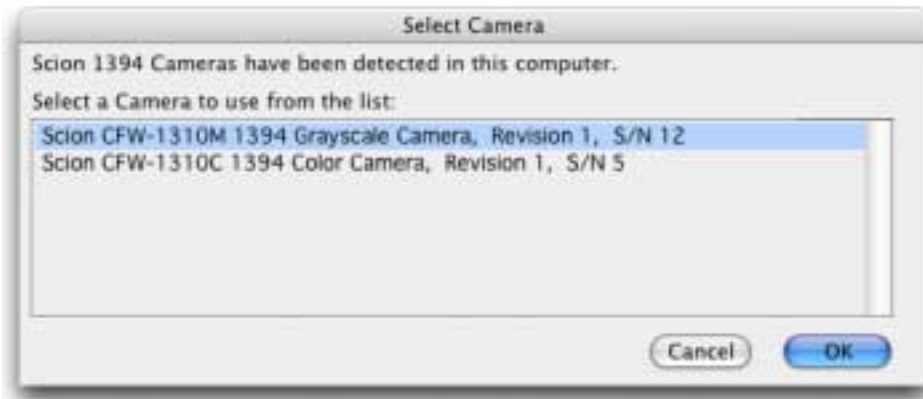
Notes on the Scion TWAIN 1394 Camera Import Module

Holding down the Shift key while invoking the Scion TWAIN 1394 Camera Module will automatically capture an image based on the previous selection. If no selection was previously made, then the entire image will be captured. Holding down the Control key while invoking the Scion TWAIN 1394 Camera Module will automatically capture an image based on the previous settings in “Multi-Frame Process”. It will return the processed selection or the entire image if no selection was made.

Using Scion VisiCapture and TWAIN 1394 Camera Software

Camera Detection

When the camera or cameras are detected, a dialog box like the following will appear:



This will show a list of the currently installed Scion FireWire Cameras. It gives the model number and the revision number of the camera. Select the camera that is needed and click the OK button to proceed.

Menus

File Menu

Acquire Full Image

Scion TWAIN 1394 Camera Import Only. This will acquire the full captured image and send it back to the TWAIN compliant program.

Acquire Selected Image

Scion TWAIN 1394 Camera Import Only. This menu item will acquire the selection that is contained in the capture window and send it back to the TWAIN compliant program.

Save As...

Scion VisiCapture Only. Saves the captured image in BIN, BMP, RAW or TIF format. If the capturing is live then the capture will stop and the captured image will be saved.

Binary (.BIN)

Saves the image as binary pixel data, in row order, one byte per pixel, without a header. The BIN file is written in Motorola (Big Endian) byte order. For color images the file will be saved in 24 bits for 8-bit Image Depth or 48 bits for 10 or 12 bit Image Depth. For Grayscale images the file will be saved in 8 bits for 8-bit Image Depth or 16 bits for 10 or 12 bit Image Depth. See Properties in the Image Menu section for more details on Image Depth. For 10 bit grayscale images the top 10 bits of the 16-bit image file is used. For 12-bit grayscale images the top 12 bits of the 16-bit image file is used.

Raw Pixel Data (.RAW)

Saves the image as raw pixel data, in row order, one byte per pixel, without a header. The RAW file is written in Motorola (Big Endian) byte order. For color images the file will be saved in 24 bits for 8-bit Image Depth or 48 bits for 10 or 12 bit Image Depth. For Grayscale images the file will be saved in 8 bits for 8-bit Image Depth or 16 bits for 10 or 12 bit Image Depth. See Properties in the Image Menu section for more details on Image Depth. For 10 bit grayscale images the top 10 bits of the 16-bit image file is used. For 12-bit grayscale images the top 12 bits of the 16-bit image file is used.

Bitmap (.BMP)

Saves the image to a Bitmap image file. Color images are always saved as 24-bit RGB files no matter what the Image Depth is set to. Grayscale images are always saved in 8 bits, no matter what the Image Depth is set to. You will be asked to enter the name

for the new file. See Properties in the Image Menu section for more details on Image Depth.

Tagged Image File Format (.TIF)

Saves the image to a file in uncompressed TIF format. For color images the file will be saved in 24 bits for 8-bit Image Depth or 48 bits for 10 or 12 bit Image Depth. For Grayscale images the file will be saved in 8 bits for 8-bit Image Depth or 16 bits for 10 or 12 bit Image Depth. See Properties in the Image Menu section for more details on Image Depth. For 10 bit grayscale images the top 10 bits of the 16-bit image file is used. For 12-bit grayscale images the top 12 bits of the 16-bit image file is used. The file is written in Motorola (Big Endian) byte order. TIF is the default file format for VisiCapture, and is usually the best format for saving digitized images.

Save Selection As...

Scion VisiCapture Only. Saves a rectangular selection of the captured image in BIN, BMP, RAW or TIF format. See above for a description of the file types.

Page Setup...

Scion VisiCapture Only. Allows specifying of printer properties. Printing orientation (portrait or landscape), paper size and margins of a printed page can be modified with this function.

Print...

Scion VisiCapture Only. This command will print the image or selection to the default printer. Selection or the printer and number of copied can also be accessed here.

Quit

Exits the program. In Scion VisiCapture using the Command + Q keys will also quit the program.

Image Menu

Start Live Capturing

This will start live video using the selected Scion FireWire Camera, you can also use the hotkey Command + G to start capturing. Notice how, during continuous capture, the name of this command changes to “Stop Live Capture” and “Live” appears in the title bar. To capture the image, select “Stop Live Video” or click anywhere on the image. Once captured the title bar changes so that “Captured” is displayed. Once capturing is stopped a rectangular selection can be made. While capturing, you are allowed to change various settings in the Properties window. See below for more information about Properties.

Snap

This command will quickly capture a single frame based on the current Properties settings, excluding the Multi-Frame settings. Once captured, the title bar changes so that “Processed” is displayed. Using the Snap is highly recommended when the Exposure is set high. See below for more information about Properties.

Multi-Frame Process

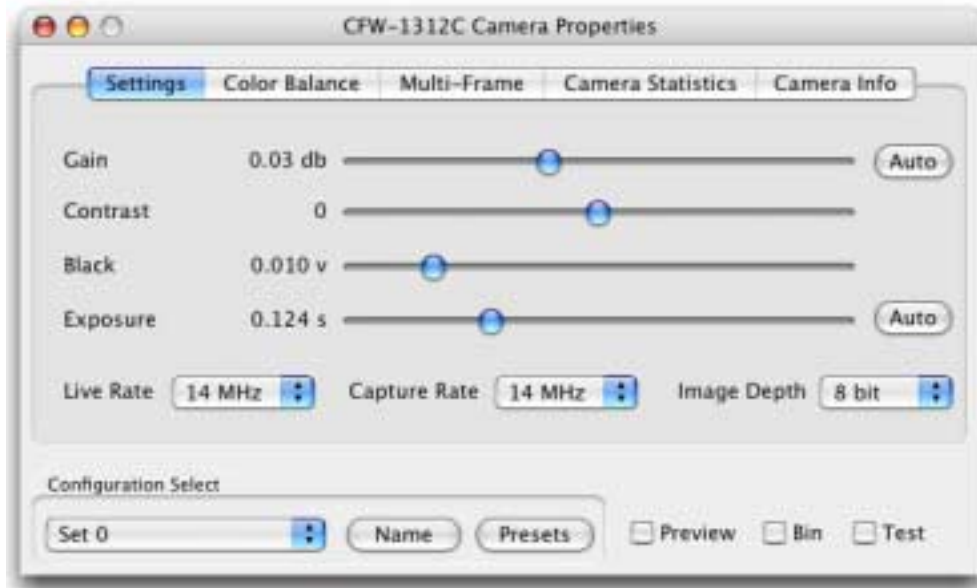
Selecting this will capture a frame based on the current multi-frame settings in the Properties window. During the capturing the Title Bar will change to “Processing” to show that the Multi-Frame capture is being processed. Once captured, the title bar changes so that “Processed” is displayed, at this time the image can be saved. At any time during the multi-frame process the Escape key can be used to abort the processing. See below for more information about Properties and Multi-Frames.

Show Properties...

Selecting this menu item will allow you to configure the currently selected Scion FireWire Camera.

Settings

This tab shows the camera settings that are currently being used.



Gain

Allows the setting of the Gain on the camera. Changes are interactively displayed if the camera is in live capturing mode. The Gain level for Color cameras can be set in the range of -12.40 dB to 23.81 dB. The Gain level for the Monochrome camera can be set in the range of -7.9 dB to 28.31 dB.

Auto - Clicking the Auto button will allow the program to attempt to automatically adjust the Exposure to the most desirable level. An error could occur if the image is too dark or too saturated.

Contrast

This will allow setting a variable Contrast in the live image. Contrast changes the difference between the light and dark tones. It is a relative scale from -127 to 128 where 0 is no contrast changes.

Black

This setting lets the user change the Black Level setting. Sets the level of brightness at the darkest (black) part of the image. It can be in the range of 0 V to $.062$ V.

Exposure

This allows the Exposure setting to be set to the number of frames specified. This is useful with low light subjects such as Gel Analysis and Fluorescence. The range can be from $.010$ seconds to 100 seconds. When setting Exposure to a high number, make sure that capturing is stopped and the Snap is used. When the capturing is live and the Exposure is set high then stopping the capture will require another cycle of exposure.

Auto - Clicking the Auto button will allow the program to attempt to automatically adjust the Exposure to the most desirable level. The Gain will also be adjusted if it is set too low for the Auto Exposure to complete. In this instance the Gain will be set to the lowest value where there is a sufficient number of white pixels. An error could still occur if the image is too dark or too saturated.

Live Rate

Allows for the setting of the live readout speed of the camera. This setting will only affect the speed at which the live image is streamed to the screen. Most users will want to set this to the fastest rate possible. Depending on the camera installed the settings can be 28 MHz, 14MHz and 7 MHz.

Capture Rate

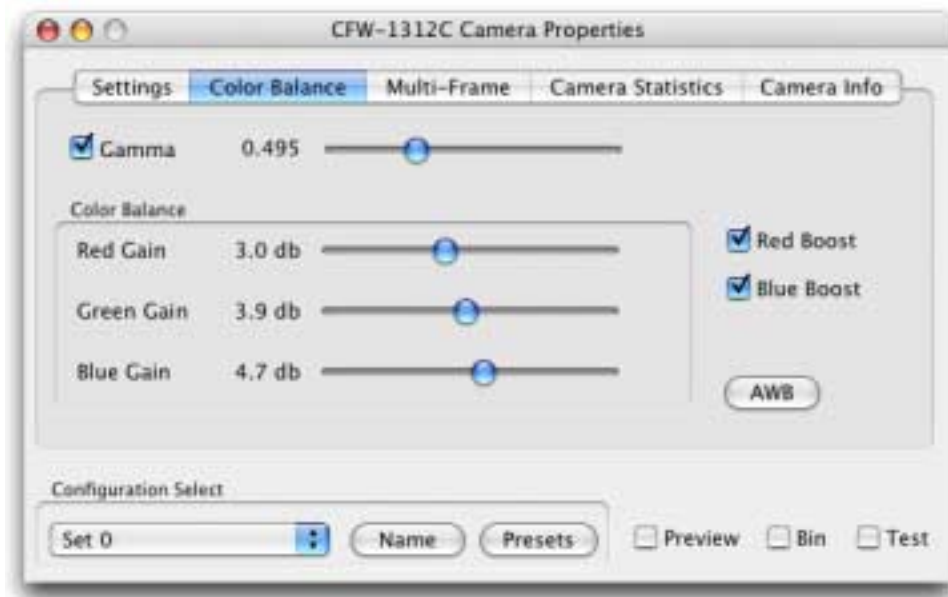
This will set the readout speed of the captured image. Most users will want to set this to a low to middle speed. Higher quality images can be captured at lower readout speeds. But if using long Exposure or long Multi-Frame captures the image will take longer to capture at lower readout speeds. Depending on the camera installed the settings can be 28 MHz, 14MHz and 7 MHz.

Image Depth

This setting is for changing the depth of the image. This can be set to 8 bits, 10 bits or 12-bits depending on which Scion camera is installed.

Color Balance

This tab is only available if a color FireWire camera is connected and selected. It will allow for manual and automatic color balance options.



Gamma

With this enabled the video signal will be compensated to produce natural-tone images. The scale ranges from .200 to 4.755 where 1 is no Gamma correction. When disabled the video signal has no compensation and is output linearly.

Red Gain

Adjustment for the red gain in the camera. Helps to adjust the Red contrast of the image. The Red Gain range is -2 dB to 10.2 dB.

Green Gain

Adjustment for the green gain in the camera. Helps to adjust the Green contrast of the image. The Green Gain range is -2 dB to 10.2 dB.

Blue Gain

Adjustment for the blue gain in the camera. Helps to adjust the Blue contrast of the image. The Blue Gain range is -2 dB to 10.2 dB.

Red Boost

Digital calculation to increase the Red Gain. Used in specific imaging circumstances.

Blue Boost

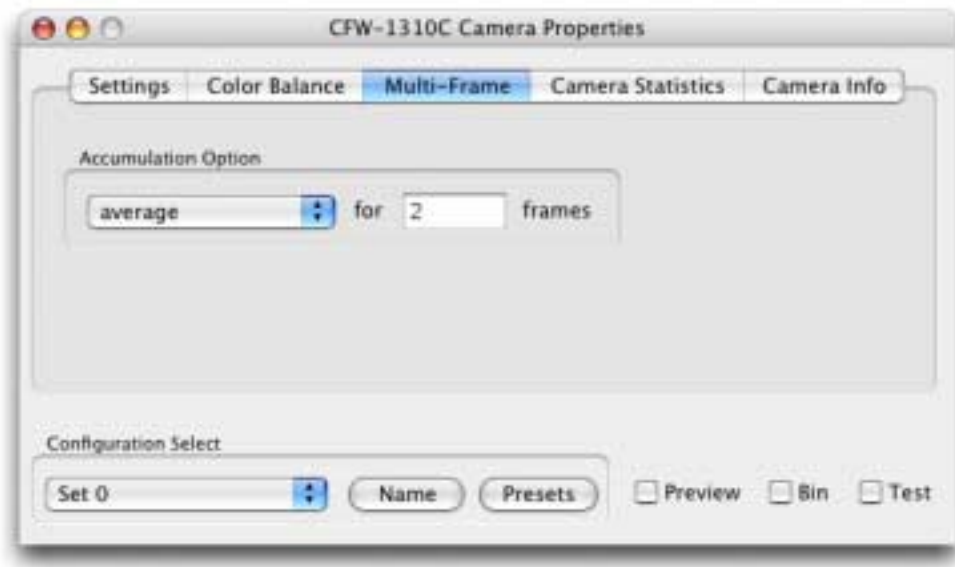
Digital calculation to increase the Blue Gain. Used in specific imaging circumstances.

AWB

This option will Auto White Balance (AWB) the image. The best method is by using a selection in an area that is supposed to be a shade of light gray and clicking the AWB button. Sometimes having the Red Boost and Blue Boost enabled will give better results. The Auto White Balance may take a few moments to complete, this is normal. A failure of Auto White Balance may occur if the image is too dark or too saturated, adjustment of Gain or Exposure may be necessary.

Multi-Frame

The settings in this tab will allow the user to do frame averaging or summation.



Accumulation Option

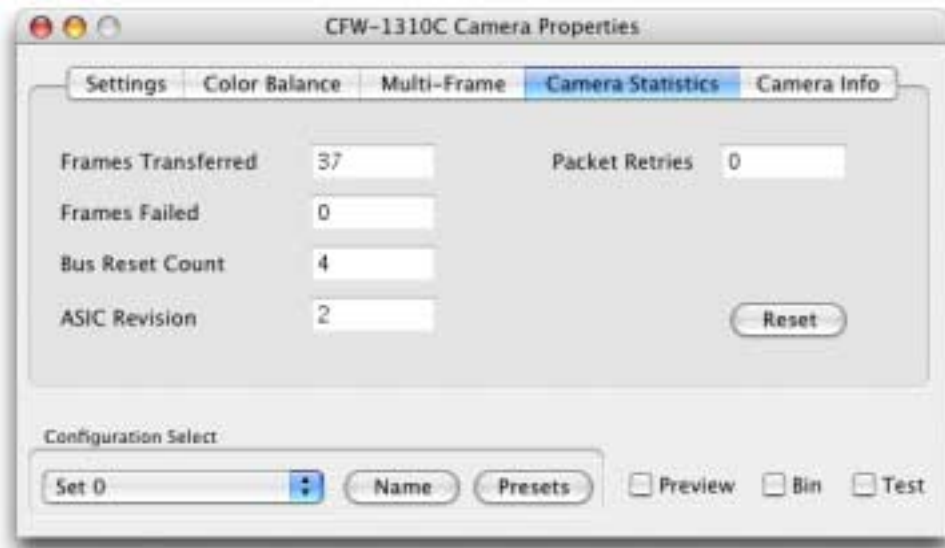
This sets the accumulation option to, no accumulation, average or sum. *No accumulation* will set the Multi-Frame option to no accumulate. So when the Multi-Frames is selected from the Image menu, only a single frame will be captured. *Average* will average the selected number of frames. This is sometimes useful in reducing random noise in the image. *Sum* will do a frame summation for the selected number of frames. This is used to make the resultant image brighter.

Frames

Selects the number of frames to accumulate. Can be in a range from 2 to 65535.

Camera Statistics

This gives the statistics of the camera and the connection to the IEEE 1394 (FireWire) bus. Generally this information would be used for troubleshooting or technical support purposes.

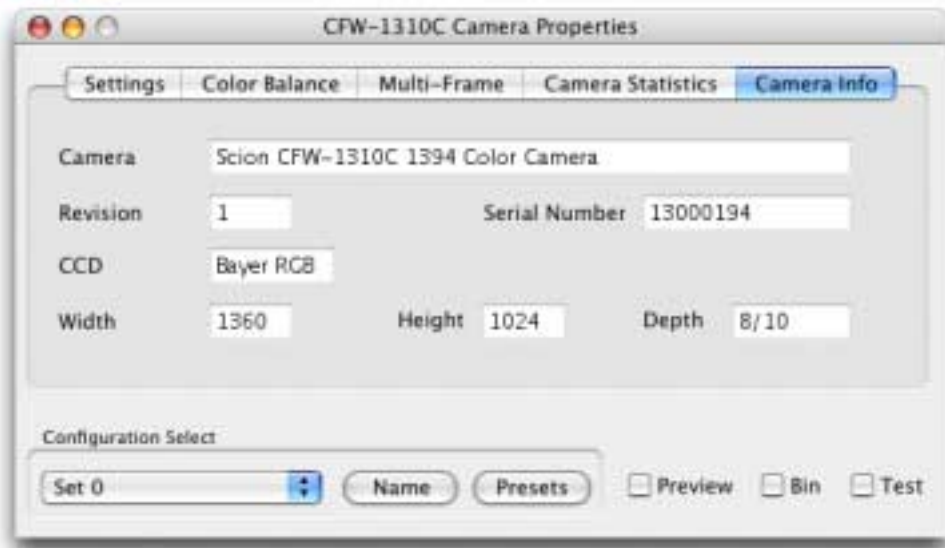


Reset

Clicking this button will reset all of the statistics back to their default starting point.

Camera Info

This gives general information on the currently selected camera.



Camera

Shows the model camera that is currently selected.

Revision

Shows the internal revision number of the camera.

Serial Number

Shows the internal Serial Number of the camera.

CCD

Shows the type of CCD installed in the currently selected camera.

Width

Width of the CCD chip installed in the camera.

Height

Height of the CCD chip installed in the camera.

Depth

Shows the pixel depth of the camera.

Configuration Select

Ten sets of Properties settings for the camera can be created and saved. A selection can be made to the configuration selection, which is most suitable for the shooting condition at hand. The currently active configuration selection is shown in the Properties window. All settings are saved upon exit of the program.

Name

This will bring up a window to allow the user to create a custom name for the currently selected configuration.

Presets

This will set all camera settings and functions to their factory default.

Preview

This check box will enable preview mode. This will increase the capture rates to aid in positioning and focusing of the camera. Images cannot be saved or captured from the Preview Window. While in Preview mode the image cannot be set to Bin mode.

Bin

Checking this box will enable the Binning mode. Binning creates each pixel in the image by summing four adjacent pixels. All of the property settings can be adjusted in this mode with the exception of Preview. A capture in Bin mode cannot be set into Preview mode.

Test Pattern

Check this box to test the camera. Usually this will only be used by technical support if there is a problem with the camera.

Help Menu

Scion On The Web

This section of the help menu will send you to various parts of the Scion Corporation website.

Copyright (c) 2007 Scion Corporation. All rights reserved.

Mac, Mac OS X and FireWire are trademarks of Apple Computer, Inc. Photoshop is a registered trademark of Adobe Systems, Inc. All other brand and product names are trademarks or registered trademarks of their respective holders.