



Quick Start

Ultra II™ Black and White
1.3 Megapixel USB 2.0 Camera

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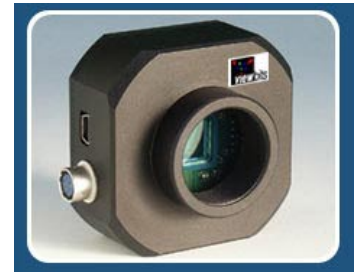
Date: March 23, 2005

Version: 5



Quick Start

Ultra II™ Black and White 1.3 Megapixel USB 2.0 Camera



This Quickstart guide shows how to take basic pictures and videos quickly.

For more detailed instructions, including installation, please consult the User Guide on the Ultra II Black and White USB 2.0 Camera CD. (Insert the CD into your CD-ROM drive and select “**View User Guide**”.)

1. Connecting the Camera to Your Computer

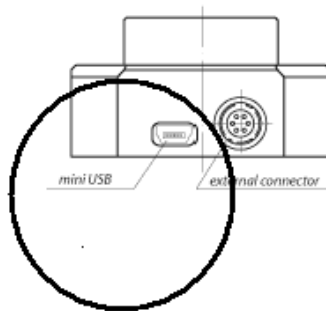
1A. This package contains the Ultra II Black and White USB 2.0 camera, a USB cable to connect the camera to your computer, and a half-inch C-mount adapter to connect the camera to a tripod.



1B. Screw your half-inch camera lens onto the front of the camera.



1C. Connect the USB cable (included in the package) to the mini USB port on the left of the camera.

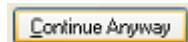


1D. Connect the camera to the USB 2.0 port on your computer with the USB cable.



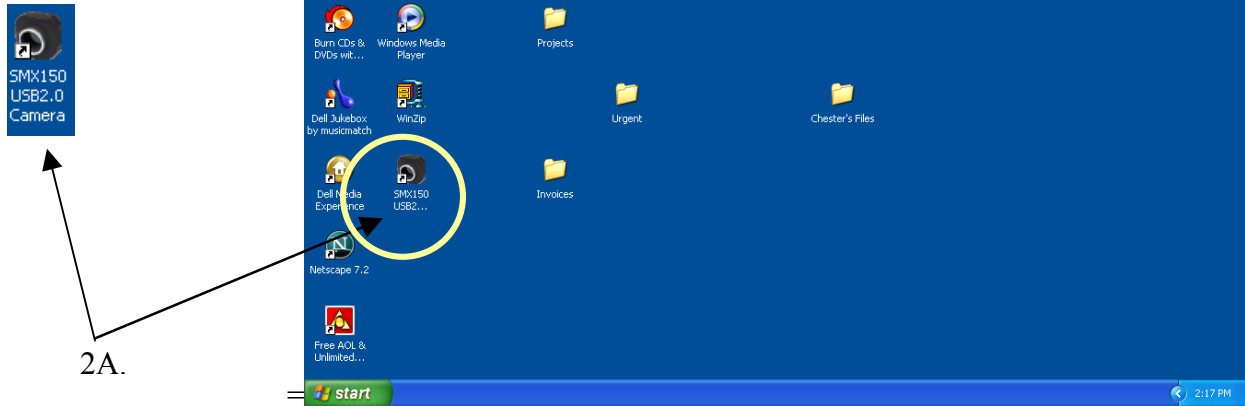
1E. When the camera is plugged in for the first time, use the defaults suggested by the **Install New Hardware** wizard.

1f. If additional Microsoft warnings are displayed, press the **Continue Anyway** button. Your camera is ready to use now.



2. Getting Started

2A. Double-click the **SMX150 USB2.0** icon on your desktop (the desktop is the main screen that comes up after your computer has completely started).



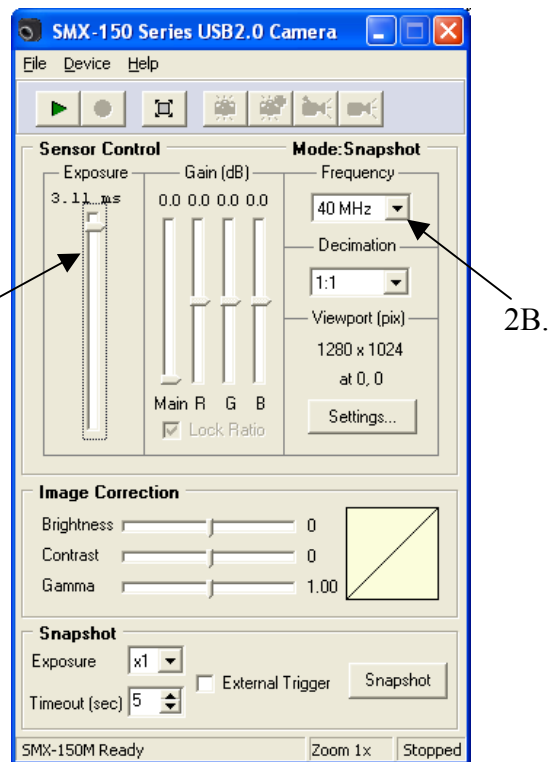
The USB 2.0 Camera application will start. This window will be displayed.

2B. Click the **Frequency** arrow and drag the slider up to the top level, 40 MHz (40 megahertz).

2C. Click the **Exposure** slider and drag it upward, to the top of the slider area.

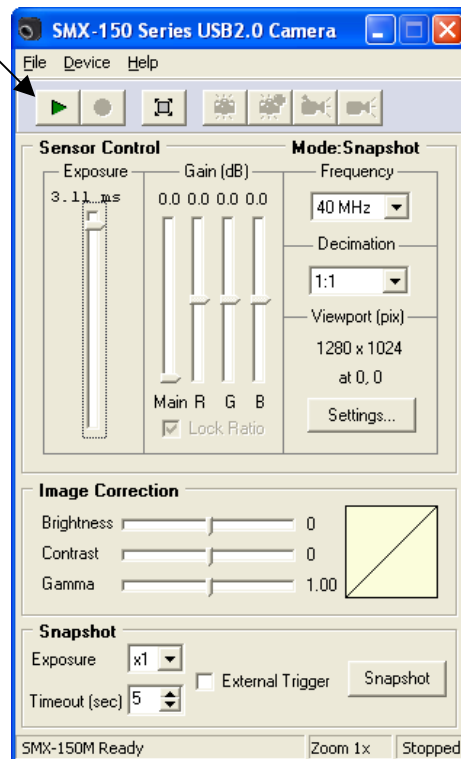
2C.

2D. Open the iris of the camera lens.



3. Getting An Image

3A. Press the **green arrow** icon in the upper left-hand corner.



3B. This **View window** will appear on your computer screen. It shows what the camera sees. To focus the camera, adjust the focus on your camera lens.



If the view window is black, try the following:

- Be sure the lens cap is off.
- Check the lens to be sure it is properly connected to the camera.
- Open the iris on the lens to allow more light into the lens to see the image.
- Check the USB 2.0 cable to be sure it is properly connected to the USB 2.0 port on your computer.
- If none of the above work, you are in trouble!

4. Calibrating for Black and White

To calibrate for the correct brightness and levels of black in your image, use the “**Find Best**” button. “**Find Best**” tells the camera how to calculate the difference between white and dark areas.

*Always use “**Find Best**” when you start to use your camera, or whenever your lighting conditions change.*

“**Find Best**” works only when the camera is on.

4A. If the camera is off, press the **green arrow** icon in the upper left-hand corner.

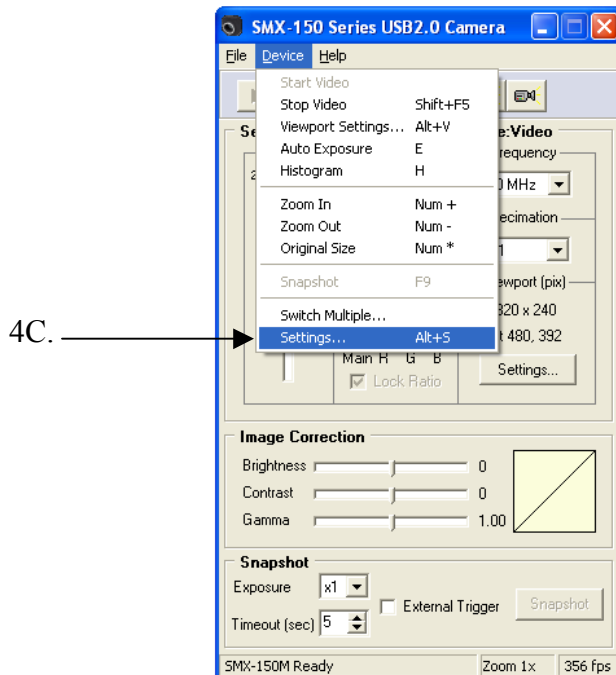


4B. This **View window** will appear on your computer screen. To focus the camera, adjust the focus on your camera lens.



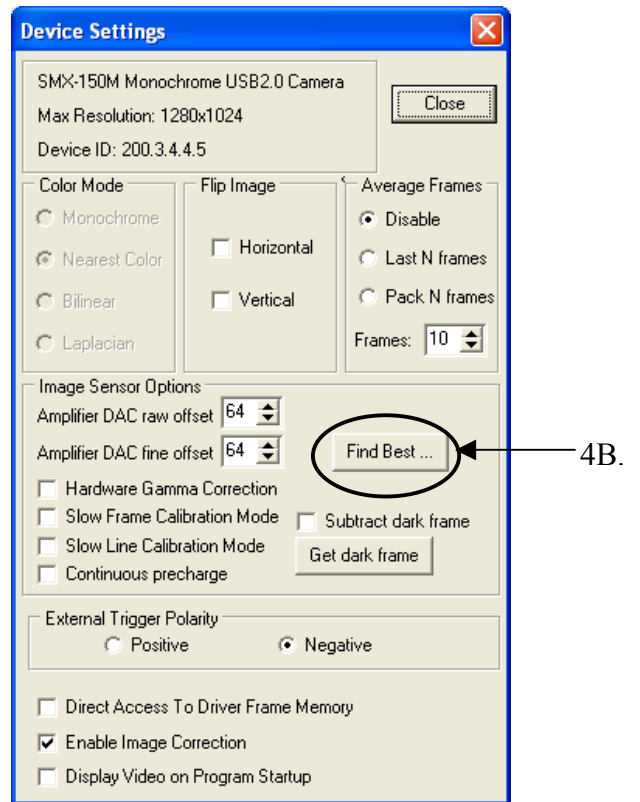
The “**Find Best**” button is in the **Device Settings** menu.

4C. Type **Alt** and **S**. Or, click on “**Device**”, then “**Settings**”.



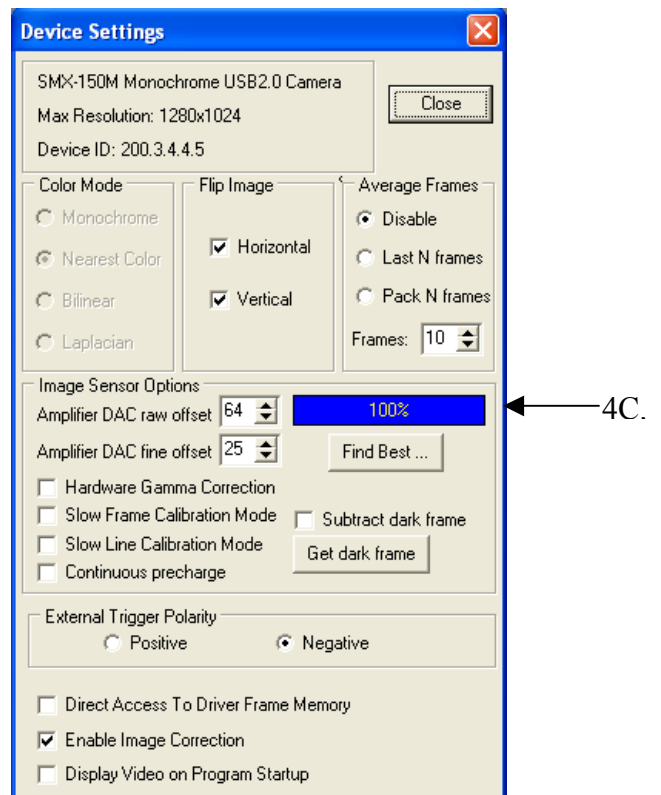
This **Device Settings** window will appear. Note that the **Color Mode** controls are non-operational because the Ultra II is a black and white camera.

4B. Press the “**Find Best**” button.



4C. A window will appear above the “**Find Best**” button. It will display a blue bar showing how much of the process is completed – 10%, 20%, etc. The process takes about half a minute. After the blue bar reaches 100%, the window and the bar will disappear.

Re-adjust the **Exposure** control if needed. If the image is too dark, adjust the Exposure slider upward. If it is too light, move the Exposure slider downward. Your settings will be saved automatically.

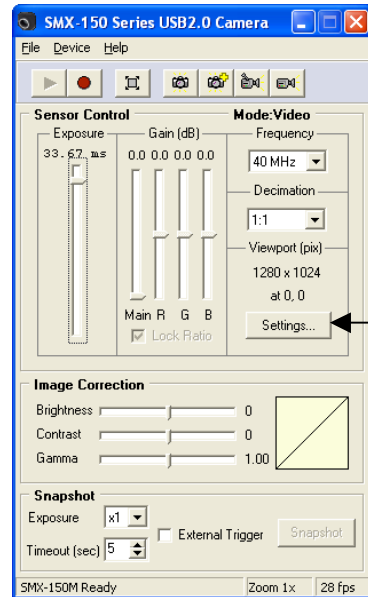


5. Adjusting the Area Scanned by the Camera

The **Viewport** is the rectangular area where the image seen by the camera is scanned into your computer. The largest Viewport size shows what the camera sees. The smaller sizes show only a portion of the camera's view.

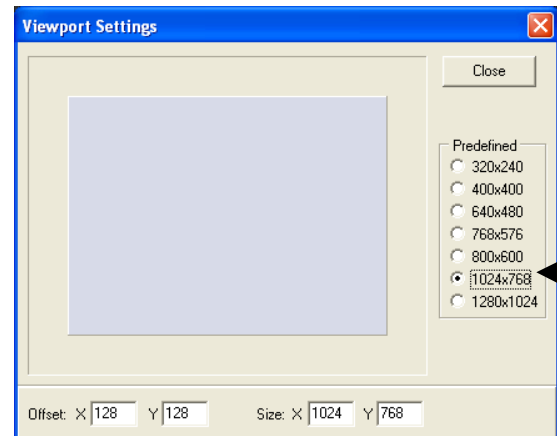
The smaller the Viewport size, the higher the frame rate for your video. For general use, you will want a larger Viewport so that you can see more of your image. However, when the frame rate is important, select a smaller Viewport.

5A. To open **Viewport Settings**, press **Alt** and **V**, or press **"Settings"** under **"Viewport"** on the main menu.



This window called **"Viewport Settings"** will appear. The blue shaded rectangle in the center represents the size of the current Viewport area compared to the size of the total possible Viewport area.

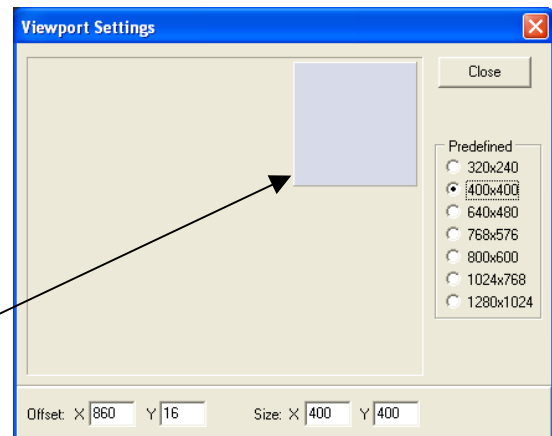
5B. To change the Viewport size, check one of the buttons on the **"Predefined"** control. For general use, a larger Viewport setting is best.



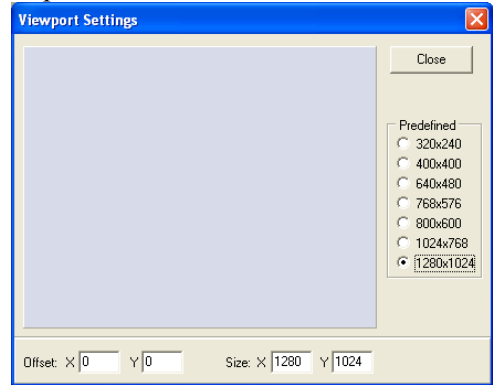
When you change the Viewport size, you may need to provide more light to the camera lens. Adjust the exposure control slider upward, or open the iris on the lens.

5C. To capture just one section of the total view, click on the blue shaded rectangle with the left mouse button and drag it to the area you want to view. (Drag to the right to see an area on the right, and drag to the left to see an area on the left.) The changes are displayed in the View window immediately.

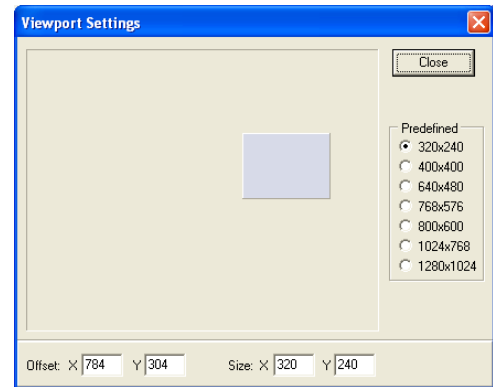
5C.



These pictures below show how capturing different sections of the Viewport Settings will give you different views. Here, the Viewport setting shows the largest area possible.



In this example, the Viewport Setting shows just a small area of the total view. For this picture, the Exposure slider was adjusted upward to allow more light into the lens.



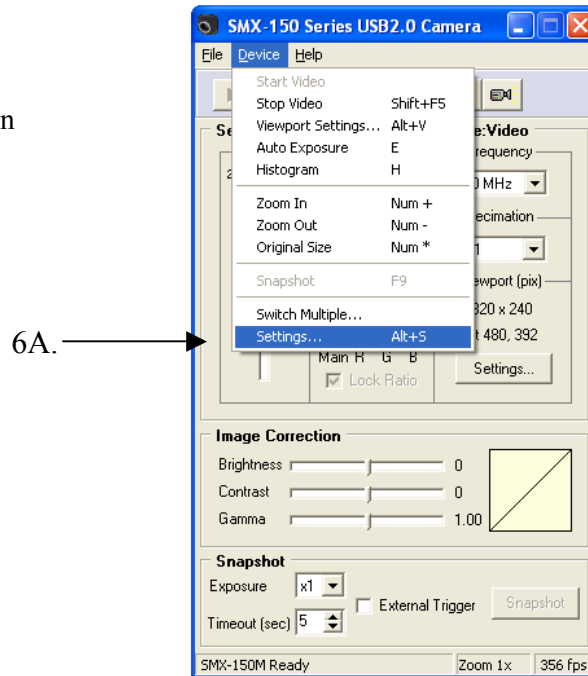
5D. As you change your Viewport settings, your frame rate will be displayed in the far right corner of the main menu. In this example, the smallest View window size will give you a frame rate of 354 fps, or 354 frames per second.

5D.

For information on manually setting the Viewport size with the “Offset” controls, please see the User Guide.

6. Advanced Image Settings

6A. Type **Alt** and **S**. Or, click on “**Device**”, then “**Settings**”.



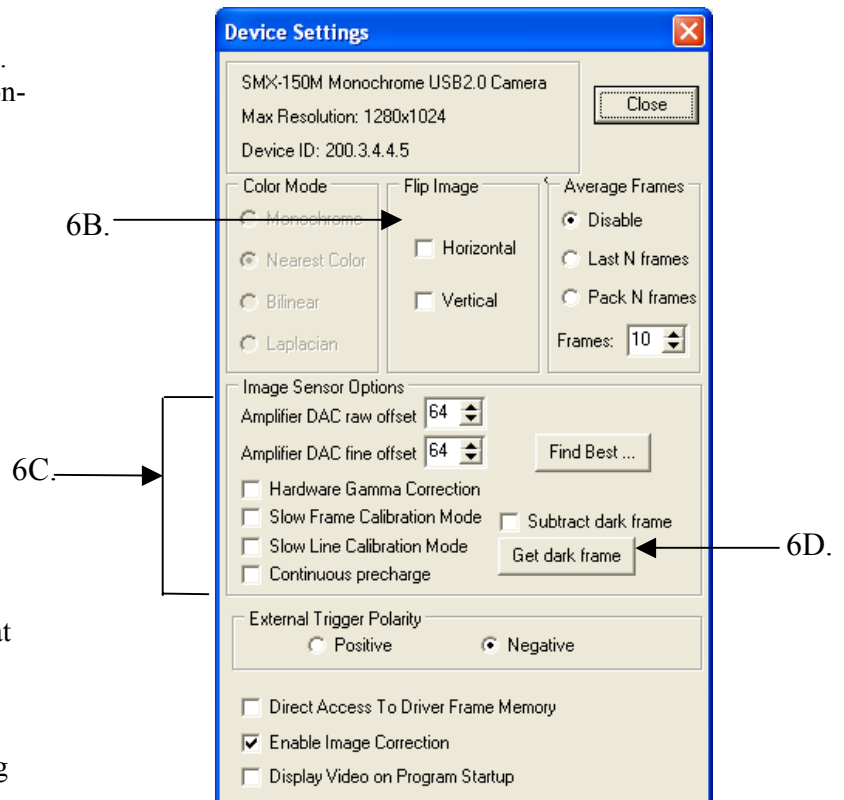
This **Device Settings** window will appear. Note that the **Color Mode** controls are non-operational because the Ultra II is a black and white camera.

6B. The **Flip Image** controls will flip the image horizontally (sideways) and/or vertically (upside down). Leave these unchecked.

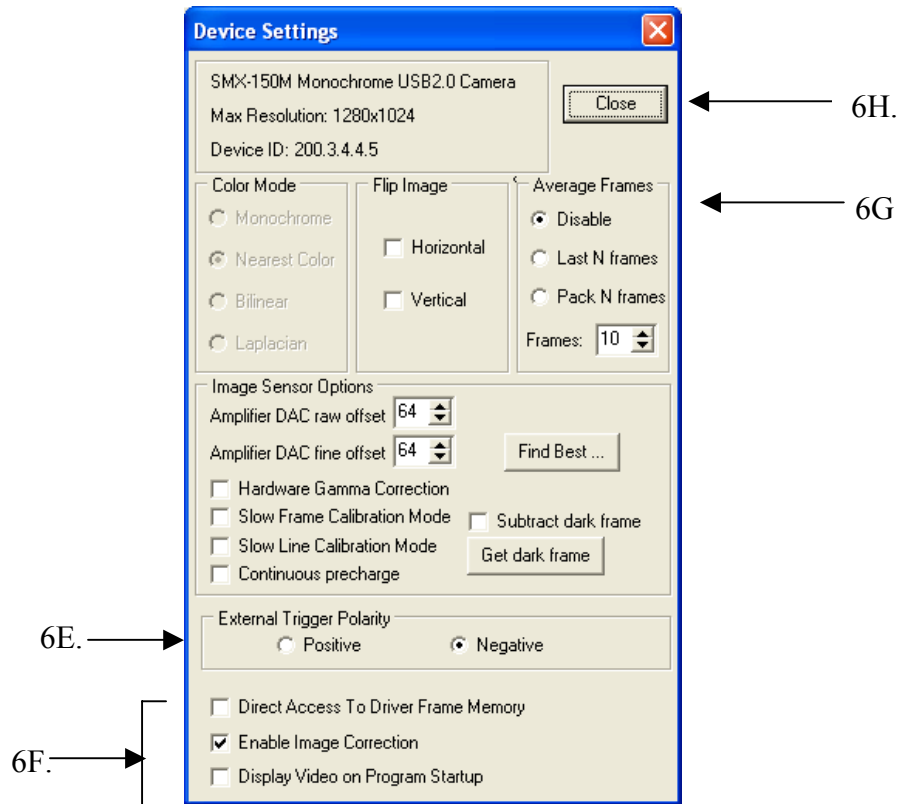
6C. **Image Sensor Options** – For more information, please see the User Guide.

6D. **Get dark frame/Subtract Dark Frame** – This option is not necessary for general use. It will reduce “fixed pattern noise” – the grainy look that can happen at higher exposure levels. Press “**Get dark frame**”, then *un-check* “**Subtract dark frame**”.

You can also reduce “noise” by increasing the frequency setting and/or reducing the exposure level.



6. Advanced Image Settings -- Continued



6D. External Trigger Polarity:

This option is for taking snapshots with an external trigger. "Positive" enables the Trigger input #1, and Negative enables trigger input #2. For more information, see the External Trigger Connector diagram in the User Guide.

6F. Additional Options:

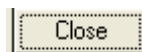
Direct Access to Driver Frame Memory: For general use, leave this unchecked. For more information, see the User Guide.

Check **Enable Image Correction:** This enables the controls for brightness, contrast (the difference between light and dark areas of the image), and gamma (the overall brightness and hue).

Display Video on Program Startup: This option is not currently enabled.

6G. The **Average Frames** controls are used to increase the image quality of still pictures. For more information, see the User Guide.

6H. Press the **Close** button to close the Device Settings window.

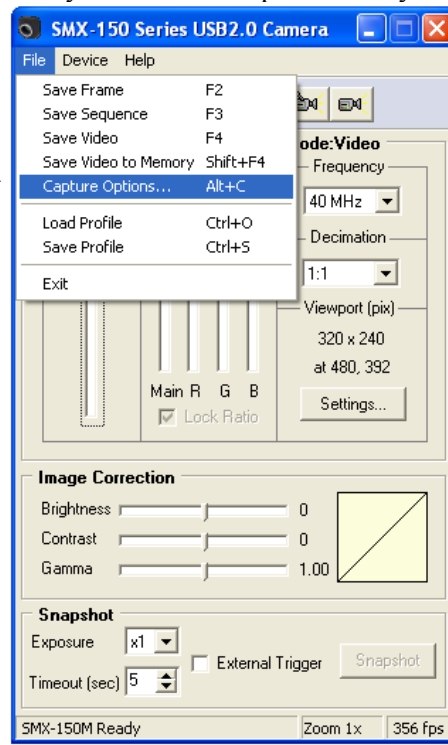


7. Where and How to Store Videos and Pictures on Your Computer

In the Capture Options section, you can select where to store your videos and pictures on your computer.

7A. For Capture Options, press **Alt** and **C**, or select **File**, then **Capture Options**.

7A. →

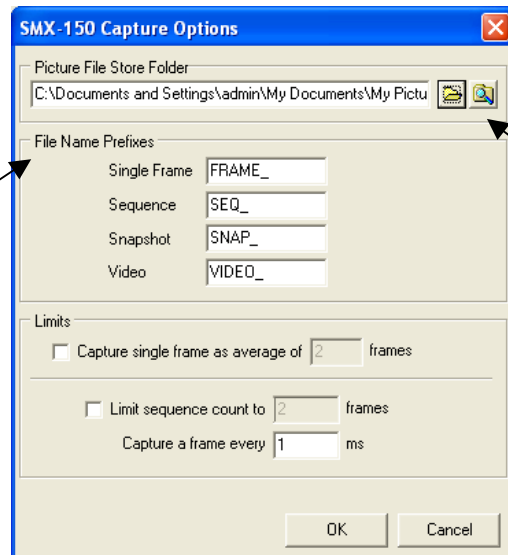


This Capture Options window will be displayed.

7B. In the Picture File Store Folder box, press the file folder icon.

Select the computer “folder” where you would like to store your videos or snapshots.

7C. →



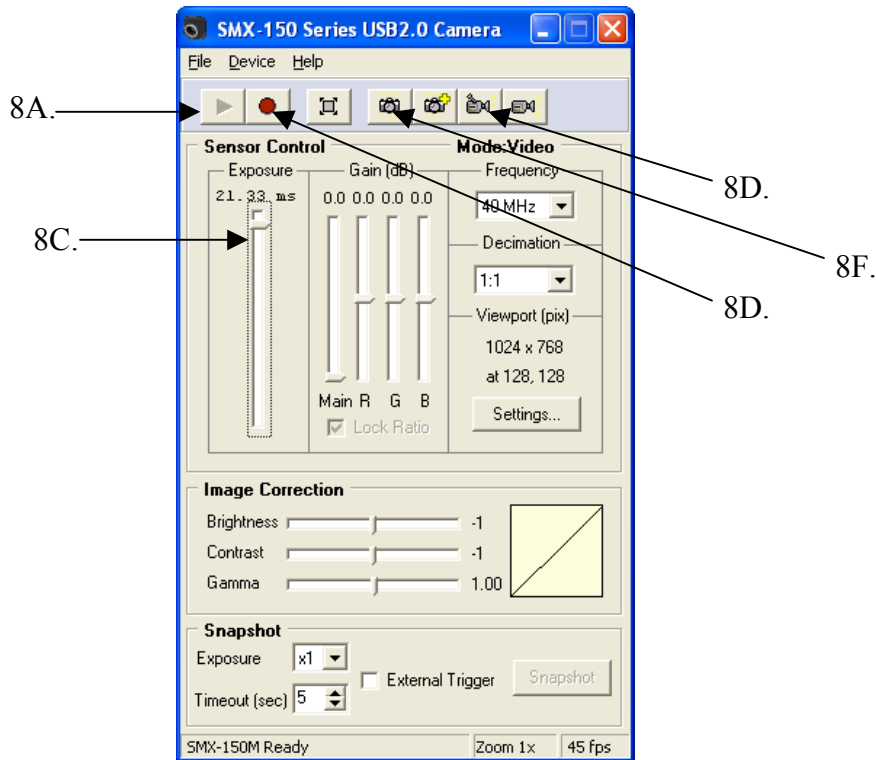
7B. →

7C. **File Name Prefixes** are set automatically by combining a file name prefix and the number of the last captured file plus one. For example, if the last captured video file is “FRAME_15.bmp”, the next file will be named “FRAME_16.bmp”. If you prefer, you can change the file name prefixes.

You can also change single file names. Open the file folder on your computer where the files are stored, right click on the file and select “Rename”.

For information on “Limits” and sequence counts, please see **Section 9** of this Quickstart Guide, Shooting Frames or Frame Sequences.

8. Capturing Video Sequences



8A. To start the Video mode, press the **green arrow** icon in the upper left hand corner.



8B. This **View window** will appear on your computer screen. To focus the camera, adjust the focus on your camera lens.



8C. Set the camera settings as desired -- exposure, Viewport, etc.

8D. To shoot video and save it to a file on your computer, press **F4** or the video camera button.



8E. To stop shooting video, press Esc or the red **Stop Video** button.



8F. To capture a single frame of a video, press **F2** or the plain camera icon.
(For example, you might shoot single frames before shooting video to check shades and camera angles.)

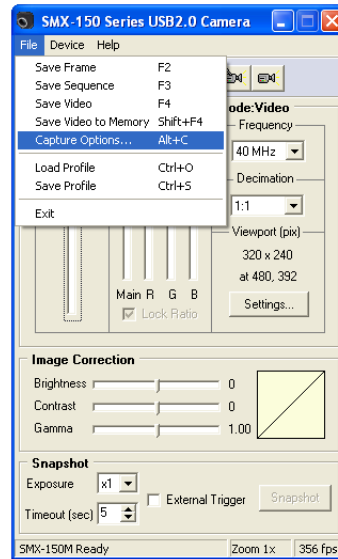


9. Shooting Frames or Frame Sequences

To shoot a frame sequence, bring up the Capture Options screen.

9A. Press **Alt** and **C**, or select **File**, then **Capture Options**.

9A.

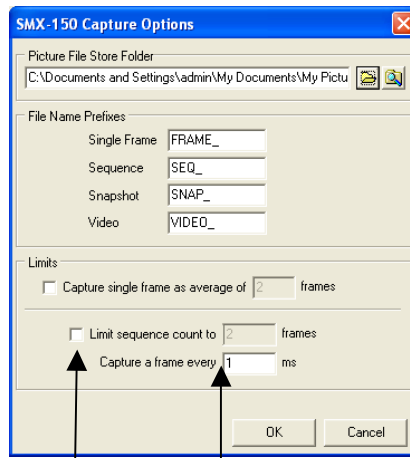


9B. Check “**Limit Sequence Count**” and enter the number of frames you want to shoot in sequence. (This number must be higher than one.)

9C. Enter a number for the timing of your frame sequence. A millisecond (ms) is 1/100th of a second. If you set “**Capture a frame every**” to 100, you will take one picture every 100 milliseconds.

For example, if you set “**Limit Sequence Count**” to six frames and set “**Capture a frame**” to every 100 milliseconds, you will take six pictures at the speed of one picture every 100 milliseconds, or six pictures at the speed of one picture every tenth second.

The millisecond interval where you capture a frame must be more than the current frame Exposure that was set with the Exposure slider on the main menu.



9B.

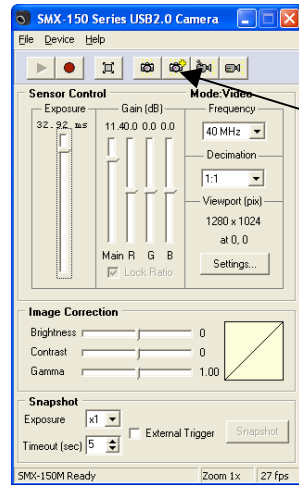
9C.

For example, if your Exposure is 59, you must capture a frame at least every 60th millisecond. If it is less, an error message will display and you will need to change either the exposure time or the number of frames. For information on capturing frames as an average of frames, see the User Guide.

9D. To shoot a frame sequence, press **F3**, or the camera icon with the yellow plus sign.



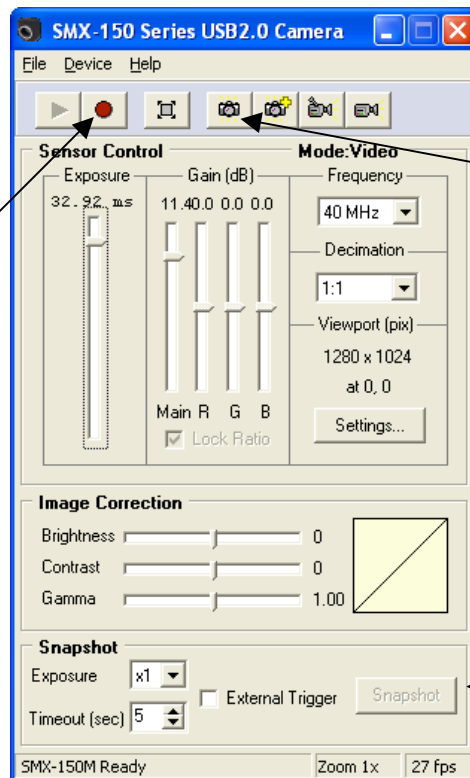
The frame sequence will be saved as a bitmap file.



9D.

10. Shooting Snapshots or Single Frames

10A. To shoot a single frame, press **F2**, or the camera icon. Your picture will be saved as a bitmap file.



10B.

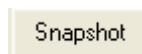
10A.

10C.

10B. To take a picture in **Snapshot** mode, press **Shift** and **F5**, or press the **Red Button**.



10C. Press **F9**, or press the **Snapshot** button.



10E.

10D. The **Snapshot View** window will open and the camera will shoot the photo.

10D.



10E. To close the **Snapshot View** window, click on the red **"X"** in the upper right hand corner.

You can also shoot snapshots with a "hardware trigger" attached to your camera. For more information, please see the User Guide.

11. Saving Camera Settings in "Profiles"

All of your current camera settings are automatically saved when you exit the program.

Profiles are camera settings saved as files. To store current settings in the Profile files, press **Ctrl** and **S**. To load a saved profile, press **Ctrl** and **O**, then select the file name (*.pro).

12. Keyboard Shortcuts

Use these "shortcuts" to quickly start video displays and bring up different windows.

F2	Capture a single video frame as a picture
F3	Capture a sequence of frames into a series of pictures
F4	Capture a sequence of frames into an AVI (video) file
F5	Start the live video display in the View window
Shift + F5 or Esc	Stop the live video display and closes the View window
F12	Bring up the Main window when displaying the live video
Ctrl and "S"	Save a Camera Profile
Ctrl and "O"	Open a Camera Profile
Alt and "V"	Bring up the Viewport Settings Window
Alt and "C"	Bring up the Capture Options Window
Alt and "S"	Bring up the Device Settings Window
E	Auto Exposure

13A.

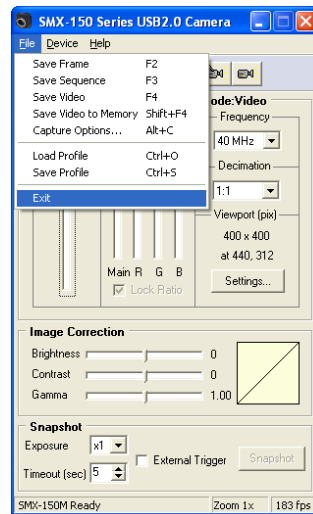
13. Closing the Program



13A. To close the program, click the red “X” in the upper right hand corner, or...

13B. Select “File”, then “Exit”.

13B. →



For the complete user guide, insert the CD into your CD-ROM drive and select “View User Guide”.



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