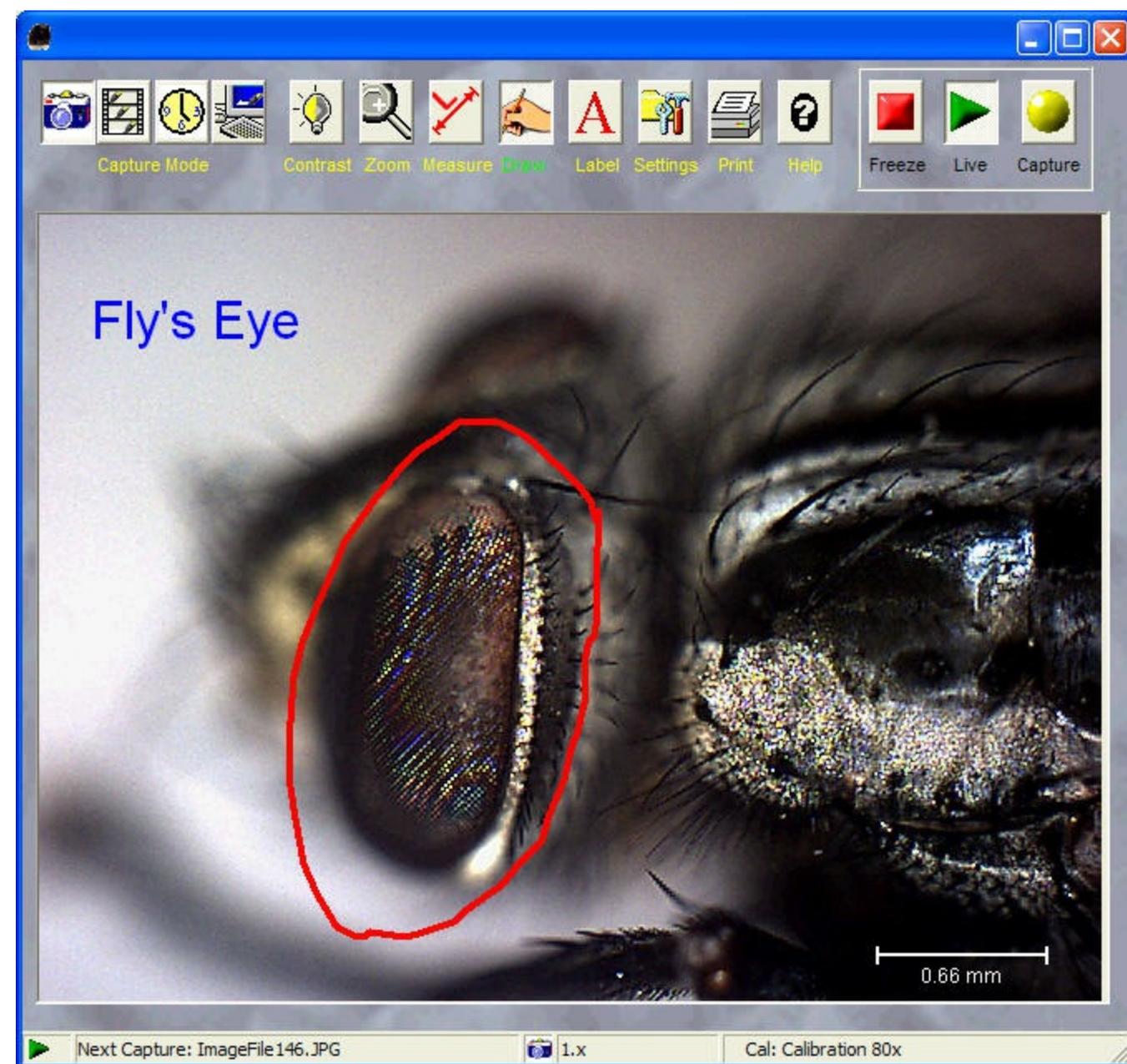


Video Image Express: Quick Help

Below is the main window for Video Image Express. You can read an [overview](#) about the program or click on a item in the picture below to learn more about it.

See [What's New in Version 2.06](#)



Special Function

F1

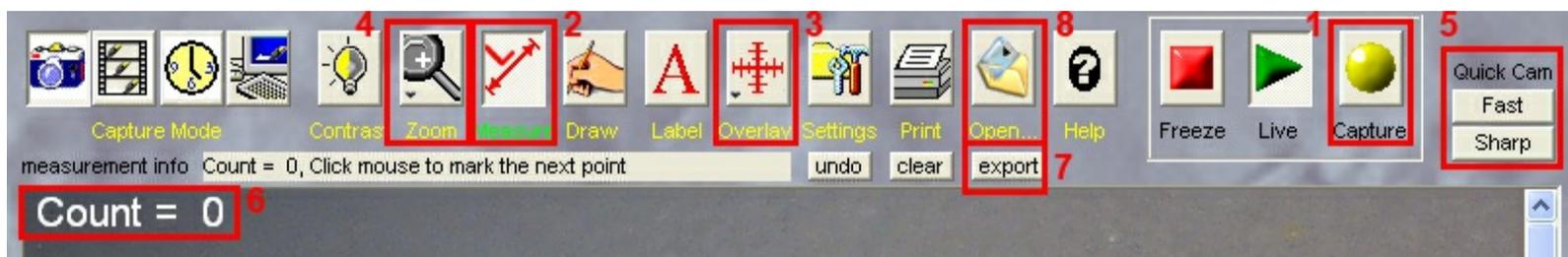
F2

**Freeze Button
DOUBLE-
CLICK**

**Capture Button
CTRL-CLICK**

Click on an item in this picture to learn more about it.

What's New In Video Image Express Version 2.06



The New Video Image Express ToolBar

Major New Features in Video Image Express

1. Capture images with calibration information. Images saved in JPG or TIFF format have the option to include the calibration information directly in the file. When you re-open the file (also a new feature) the calibration is loaded back into Video Image Express. This allows you to make additional measurements or to re-check previously measurements.

2. New measurement tools including a new "Perpendicular to line" drag tool and point marker click tools. Now you can mark each clicked point and relevant geometry marks such as a circle's center. New advanced relational measurement tools including circle center-to-center and point perpendicular to line.

3. Graphical overlays and a new overlay menu. The calibration and overlay menu has been moved to the toolbar where it is easier to find. The reticle, overlay and cal bar menus have been updated to make them easier to use. A new option has been added to display line drawings or transparent overlays on the live image. See below for more information on how to create and display an overlay.

4. Zoom 1/2x. Makes it easier to display the image from high resolution multi-megapixel cameras.

5. Optional Quick Cam controls to quickly switch your camera from a **fast** update setting (high frame rate) to a **sharp** image setting (high resolution). Especially designed for high megapixel cameras, Quick Cam lets you store a **fast** setting to scan at high speed; then switch to a **sharp** setting to capture a high resolution photo. Settings can be set in the Settings window.

6. Counting objects. Set the measurement tool to point <no label> and Video Image Express will keep track of the number of mouse clicks.

7. Export measurements to EXCEL®, the clipboard, a graphics file or an importable data file.

8. Open saved images directly into Video Image Express. Now you can open any standard image file into Video Image Express to use all the annotation and measurement tools available for live images. If you re-open an image saved with Video Image Express (in JPG or TIFF format) then the calibration will be re-loaded into the software.

Additional Features

9. Hold down the SHIFT key to move any label or overlay -- even in DRAW or MEASURE mode.

10. Hold down the SHIFT key and double-click the mouse to move the overlay to its original position

11. Hold down the SHIFT key and double-click the CAPTURE button to capture only the portion of the image that can be seen in the window on the screen.

New Measurement Tools

To access all the new measurement tools, press the MEASUREMENT button and then right-click the mouse within the live image.

New Drag Tools

Perpendicular to Line -- Click and hold the mouse to drag a line. Release the mouse at the end of the line, and then drag the mouse to draw the perpendicular line. Click the mouse again to mark the end of the perpendicular line.

New Click Tools

1 point (x,y) -- Click to mark a point, and click again to locate the label.

The label will display the x,y coordinates of the point.

1 point <no label> -- Click to mark a point. If no other measurement styles have been used, the program will count the number of clicks.

Relational Measurement Tools

Select closest point -- Lets you select a point that is already displayed including any end point, marker or circle center. Retains high resolution sub-pixel accuracy of previous measurements.

Center Reference Coordinates -- Center the reference coordinate on the last selected (or created) point. If you measure a circle and select "Center Reference Coordinates" then the circle's center will be displayed as (0,0).

Auto-Calculate Measurement Tools

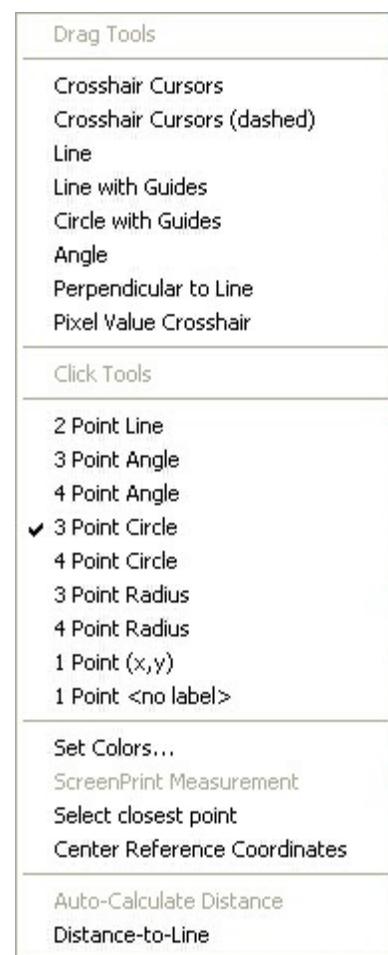
Distance-to-Line -- Automatically measure the distance between the last created line and the last created point (including a circle center).

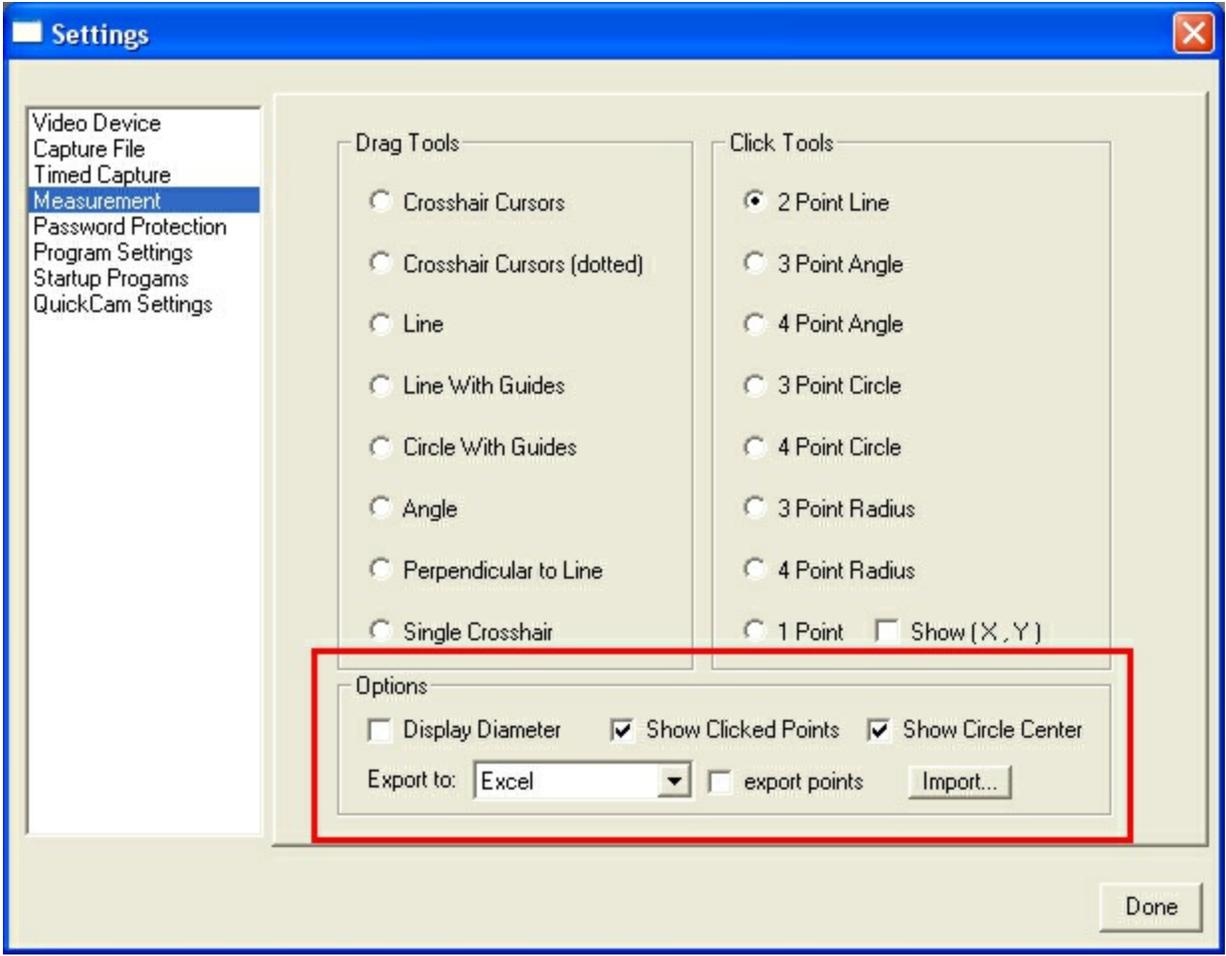
Center-to-Center -- Automatically measure the distance between the centers of the last two created circles.

Midpoint of Line -- Automatically locate the midpoint of the last created line.

Measurement Options

New measurement options are found in the Settings window under the Measurement category.





Display Diameter -- display circle information in diameter. Otherwise the information will be displayed in radius.

Show Clicked Points -- display a marker on the screen anywhere a point is clicked with the mouse.

Show Circle Center -- display a marker at the center location of a circle or radius.

Export to: -- export the on-screen measurements to EXCEL, clipboard, JPG graphics file or a data file

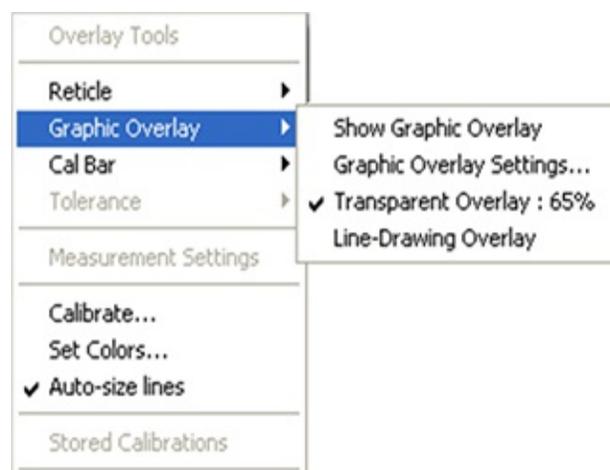
Export points -- export all clicked points to the EXCEL file or clipboard. Otherwise, only the measured geometry shapes (lines, circles, angles) are exported.

Import... -- Import a set of measurements from a previously exported data file.

Line Drawings and Transparent Overlays

Video Image Express can display a line drawing or transparent image as an overlay on the live video image.

The overlay options are available on the new Overlay menu. The menu provides options to display a reticle, calibration bar or graphic (image) overlay.



The Graphic Overlay submenu (see right) has the following selections available:

Show/Hide Graphic Overlay – Show (or hide) the overlay on the live image.

Graphic Overlay Settings... -- Opens a dialog window with options to select the image to display as an overlay. The dialog can be used to configure the scale of the overlay (1x or scaled to fit the window) as well as the transparency and display format of the overlay (transparent graphic or line drawing). After changing any overlay settings, you must Reload the overlay for those changes to take effect.

Transparent Overlay : xx% -- Displays the overlay as a transparency. The transparency value shows the translucency of the overlay. 100% transparency means the overlay cannot be seen. 0% transparency means the overlay is opaque and completely blocks the live image.

Line-Drawing Overlay – Displays the overlay as a line drawing. The background color (white) is not shown, so that the graphic is displayed directly over the live image.

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Adjusting the Overlay Image

It is possible to re-position the overlay as well as change the transparency directly with the mouse. To reposition the overlay, hold the SHIFT key down, click-and-hold the left mouse button with the mouse on the overlay, then and drag. To reset the overlay to its original position, hold the SHIFT key and double-click on the overlay.

To dynamically change the transparency of the overlay, hold down the ALT key, click-and-hold the left mouse button with the mouse on the overlay; then drag the mouse left or right.

Line-Drawing Overlay Files

Any image file can be imported into Video Image Express. When set to line drawing, the overlay will be displayed with the color white (RGB = 255,255,255) fully transparent. This allows you to create a drawing and to display only the drawing lines and objects over the live image. The white portion of the overlay will not be displayed. Video Image Express can open most standard image formats (JPG, BMP, TIF, PNG) to be displayed as an overlay.

Overview of Video Image Express

Video Image Express is software for scientific video imaging. Video Image Express works with analog and digital cameras and microscopes (analog cameras require a frame grabber or video adapter). The software provides all the features you need to display and capture video images. Video Image Express can be used to capture still photos, movies or time lapse sequences.

Video Image Express can also capture images directly into any image editing software -- such as Photoshop[®] or Paintshop Pro^{®} -- for measurement, marking, and annotation.*

The Video Image Express interface can be divided into the following sections. Click on a section title to learn more about that feature.

[Capture Modes](#)

[Contrast Control](#)

[Zoom Control](#)

[Measure Control](#)

[Draw Control](#)

[Label Control](#)

[Settings Control](#)

[Video Device Settings](#)

[Capture File Settings](#)

[Timed Capture Settings](#)

[Measurement Settings](#)

[Program Settings](#)

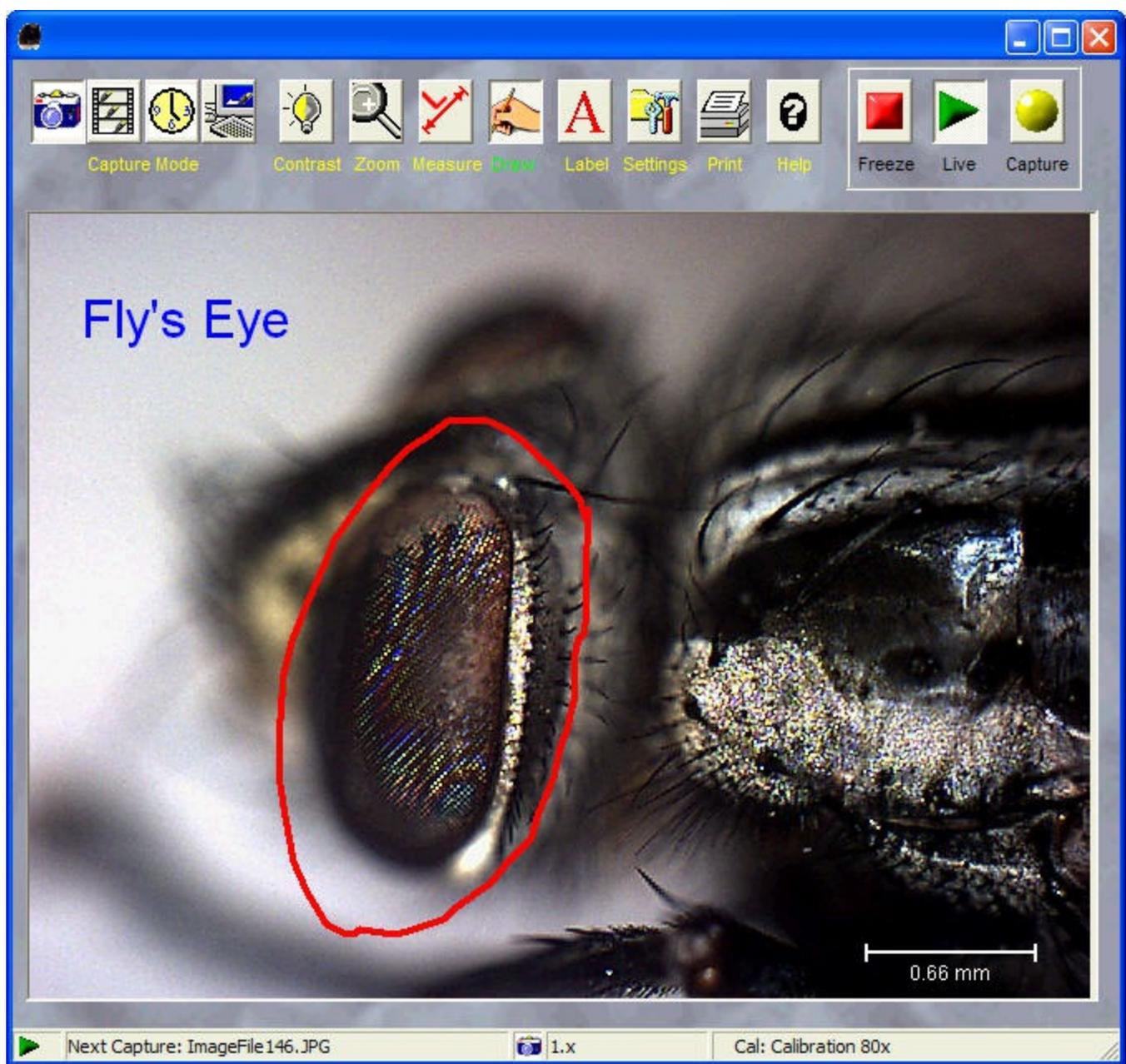
[Video Mode Controls](#)

[Draw On The Live Video](#)

[Function Keys & Shorcuts](#)

[What's New in Version 2.06](#)

If you don't see the feature which interests you then check ["What's New in Version 2.06"](#)



* Photoshop and Paintshop Pro not included.

Capture Mode



Capture mode buttons let the user choose how to record the images seen in Video Image Express. The capture mode options allow the user to capture the live image as a(n):

 *Image file*: Capture the image seen on the screen, and store it in bitmap (.bmp) or JPEG (.jpg) format. Use the Settings button to set the name of the file and directory.

 *Movie file*

: Create a movie of the video as seen on the screen. The movie file is stored in the AVI (.avi) format; a standard windows file format which can be played back using the Windows Media Player[®]. Use the Settings button to configure the movie file. Press the *Stop* button to end the movie.

 *Time lapse movie*

: Create a time lapse movie of the video as seen on the screen. A time lapse movie consists of a movie created by capturing a single movie frame periodically. The time delay between movie frames can be set to one second or longer. The software will continue to capture frames until the Stop button is pressed or until the time limit is reached.

 *Image file opened in an image editor*

: Capture the image seen on the screen, store it and then open it in an image editor program. Use the Settings button to select a image editor. The icon on the status bar will change to indicate the program which will be used when the image is captured.

Contrast Control



Opens a window which provides control over the brightness, contrast, saturation, hue and sharpness of the image. Some video camera drivers do not provide software access to the video settings of the camera. For those devices the brightness button will open a window provided by the camera driver.

To adjust any of the camera settings slide the control right to increase the value or left to decrease the value. If a slide control does not move it is because the camera does not provide control over the parameter.

Zoom Menu



- ✓ 1X
- 2X
- 3X
- 4X
- Fit to window

- Full screen

The zoom menu allows the user to adjust the size of the video image as displayed on the screen. The user can select a fixed zoom scale up to 4X.

The user can also select Fit to window to resize the video image to fill the main window.

Select the Full screen menu option to resize the main window to fill the entire computer screen. Select the Full screen menu option again to restore the main window to its original size.

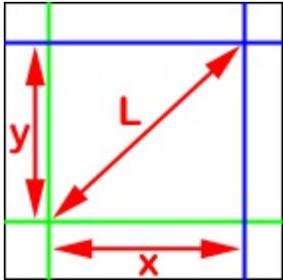
The Zoom feature is especially useful when combined with the measurement tools. For precise measurement, zoom in at 2 -3X magnification to accurately position the measurement tool on the image.



The measurement control allows the user to make measurements directly over the live video image. This makes measurement fast and easy and eliminates the extra steps of saving and recalibrating that is required by many other image editing programs.

To enable on-screen measurement, press the Measure Button. A measurement tool will appear on the screen and a distance legend will appear in the upper left corner of the image. Different measurement tools are available from the [Settings window](#). The measurement tools are also available by right-clicking on the live image when the measurement control is enabled.

There are two different types of measurement tools:



Drag Tools

Drag tools are active measurement tools. You can drag them across the screen to make measurements, or click and drag the mouse to position the tool. The following drag tools are available:

Crosshair Cursors:	Displays a pair of cross hairs. Click and drag on top of each crosshair to move it, or click and drag in the area between the crosshair to move them both together.
Line:	Draws a line on the image. Click and hold the left button to start the line. Drag to draw the line. Release the mouse button to end the line. Once a line is drawn, click and drag on the end to resize the line or click and drag on the interior of the line to move it.
Line with Guides:	Draws a line with perpendicular guides on each end. Click and hold the left button to start the line. Drag to draw the line. Release the mouse button to end the line. Once a line is drawn, click and drag on the end to resize the line or click and drag on the interior of the line to move it.
Circle with Guides	Draws a circle with perpendicular guides and a line to mark the drag points. Click and hold the left button to start the circle. Drag to draw the circle. Release the mouse button to end the circle. Once a circle is drawn, click and drag on the end of the diameter line to resize the circle or click and drag on the interior of the circle to move it.
Angle	Draw a triangle segment which shows an angle. Click and hold the left button to draw the first line. Release the mouse and continue to drag to draw the second line. Click the mouse to end the triangle segment. Move the cursor over the figure to drag it, or move the cursor over an end or corner to reposition it.
Single Crosshair: (position & value)	Draws a single crosshair on the screen. Provides information about the position of the crosshair and the color information for the image pixel located directly beneath the crosshair.

Click Tools

Click tools create permanently positioned measurements. Once a measurement is placed with a click tool, it cannot be dragged or repositioned. The following measurement click tools are available:

Two-point line <i>(3 mouse clicks)</i>	Click the mouse at the location of each end point. Then click the mouse at the location for the label. A line will be drawn with the current pen color and line size.
Three-point angle <i>(4 mouse clicks)</i>	Click the mouse at the first end, inside corner, and second end point for the triangle segment. Finally click the mouse at the location for the label. The triangle segment will be drawn with the current pen color and size.

Right-Click Measurement Menu

Drag Tools
Crosshair Cursors
Line
✓ Line with Guides
Circle with Guides
Angle
Pixel Value Crosshair
Click Tools
2 Point Line
3 Point Angle
4 Point Angle
3 Point Circle
4 Point Circle
3 Point Radius
4 Point Radius
Set Colors...
ScreenPrint Measurement

Four-point angle
(5 mouse clicks)

Click the mouse twice to identify the first line. Click the mouse twice to identify the second line. Click the mouse a fifth time to position the label. The two lines will be drawn with a label indicating the angle between them.

Three-point circle
(4 mouse clicks)

Click the mouse three times on the perimeter of a circle. Click the mouse a fourth time to locate the label. A circle will be drawn with a label to indicate the radius.

Four-point circle
(5 mouse clicks)

Click the mouse four times on the perimeter of a circle. Click the mouse a fifth time to locate the label. A circle will be drawn with a label to indicate the radius.

Three-point arc
(4 mouse clicks)

Click the mouse three times on the perimeter of the arc. Click the mouse a fourth time to locate the label. An arc will be drawn between all the points, with a label to indicate the radius.

Four-point arc
(5 mouse clicks)

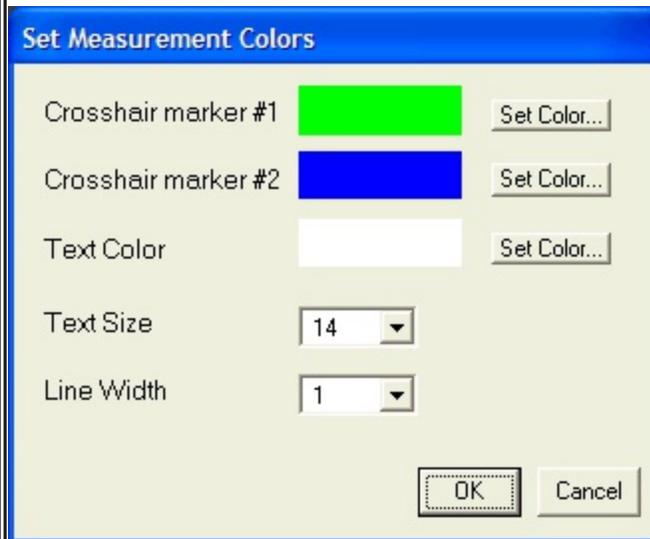
Click the mouse four times on the perimeter of the arc. Click the mouse a fifth time to locate the label. An arc will be drawn between all the points, with a label to indicate the radius.

Measurement Menu (Right-Click the Mouse)

Right-click the mouse while the measurement control is active to access all measurement tools and also the following additional functions:

Set Colors...

Set the colors, line size and font size (and color) for the measurement tools through the following window:



ScreenPrint Measurement

This option is only available for measurement drag tools. Lets you freeze a measurement on the screen making it permanent. To use this option position the drag tool where you want it to be displayed. Position the cursor at the location where the label should be displayed. Right-click the mouse to access the measurement menu, and select "ScreenPrint Measurement." A permanent measurement will be placed on the image

Measurement Status Window and Control

When the measurement control is activated, a "measurement info" status window will appear

<p>between the main buttons and the live image window. The status window contains the following parts:</p>	
<p>Information Bar</p>	<p>The information bar provides instructions on how to use the active click tool, or shows the current measurement information.</p>
<p>Undo button</p>	<p>The undo button will erase the last permanent measurement made with a click tool.</p>
<p>Clear button</p>	<p>The clear button will erase all permanent measurements made with a click tool.</p>

The measurement legend will show the following information for the drag tools:

<p>Crosshair Cursors:</p>	<p>Displays X (horizontal) distance, Y (vertical) distance and L (the diagonal length) between the crosshair cursors.</p>
<p>Line:</p>	<p>Displays X (horizontal) distance, Y (vertical) distance and L (the length) of the line drawn on the screen.</p>
<p>Line with Guides:</p>	<p>Displays X (horizontal) distance, Y (vertical) distance and L (the length) of the line drawn on the screen.</p>
<p>Circle with Guides</p>	<p>Displays the location of the center of the circle ([0,0] is the top-left corner of the image) and the circle's radius .</p>
<p>Angle</p>	<p>Displays the absolute angle between the two lines of the triangle segment.</p>
<p>Single Crosshair: (position & value)</p>	<p>Displays the location of the crosshair ([0,0] is the top-left corner of the image) and the RGB color below the crosshair.</p>

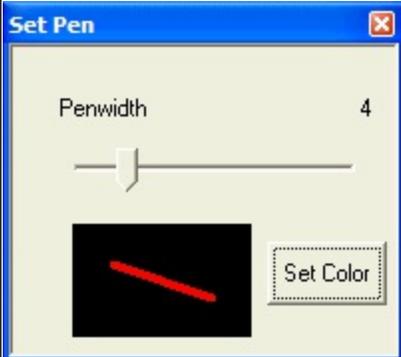
Draw Control



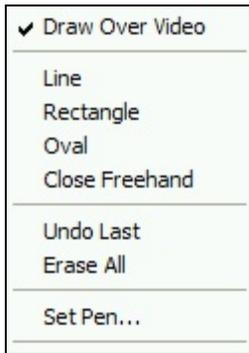
With Video Image Express you can directly on the live video image. Press the Draw button to enable the drawing mode. Now hold down the left mouse button and begin drawing. Whatever you draw is part of any image or movie you create -- the Capture button will record your freehand annotations.

Right-click the mouse button to access the Draw menu. Press the Draw button again to hide the drawing.

Draw Functions:

No function selected	When no function is selected the freehand drawing tool is active. Hold down the mouse button to draw anywhere on the live image.
Line	Click and drag the mouse to draw a straight line
Rectangle	Click and drag the mouse to draw a rectangle
Oval	Click and drag the mouse to draw an oval
Close Freehand	Closes the last freehand shape drawn
Undo Last	Erase the last shape or line segment. Repeat to remove additional segments
Erase All	Erase all drawings.
Set Pen...	Display the following window to adjust the pen color and line width settings 

Right-Click Draw Menu



Note: The Draw and Measure functions do not work at the same time. You can switch between measurements and annotations using the Draw and Measure buttons.

[Tell me more about the Draw Over Video menu functions.](#)

Label Control



The Video Image Express label control allows the user to place a label or marker anywhere on the screen using any font and color. Once a label is placed it can be moved by dragging the label on the screen.

Create a Label

Click on the label button to open the Set Label window. This window will allow you to set up to 6 labels or markers and place them on the live image. After a label or marker is placed on the screen you can drag it into position.

Select the label number (1-6) from the label menu. The program will automatically select the next unused label number when the window opens.

To set a text label click the mouse on the Text option and then type the text in the edit area below. Set the font, font size and font color for the label. Make sure the visible box at the top is checked so that the label will be visible. To place the label on the screen press the Place button. To remove a label from the screen press the Remove button.

Create a Marker

Ten pre-designed markers are also available. To select a marker press the button which the chosen marker shape. Set the marker size and marker color. Finally press the Place button to place the marker on the screen.

Reposition a Label or Marker

Once a label has been placed on the screen it can be repositioned by "click-and-drag."

Edit a Label

The Set Label window can also change a label already on the screen. To edit a current label you can 1) press the Label Control button and select a label number from the menu at the top or 2) making sure the Measure and Draw functions are off, double-click the mouse on the label to open the Set Label window.

Make any changes to the label and then press the Place button to update the on-screen label.

Delete a Label

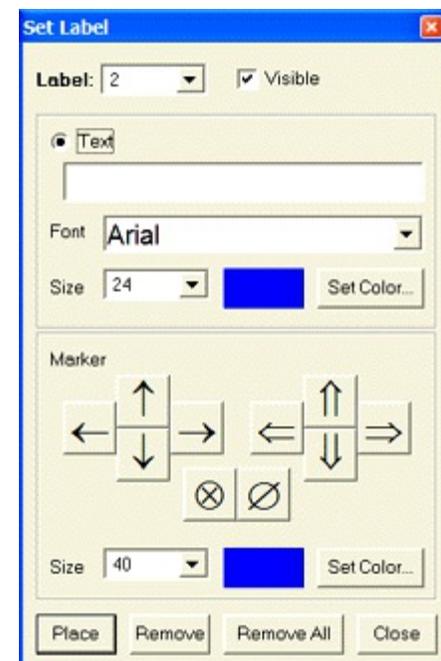
To delete a label select the label number from the Label Number menu and press the Remove button. Use the Remove All button to remove all labels from the screen.

Make a Label Invisible

A label can be temporarily hidden by unchecking the Visible box at the top of the Label Window.

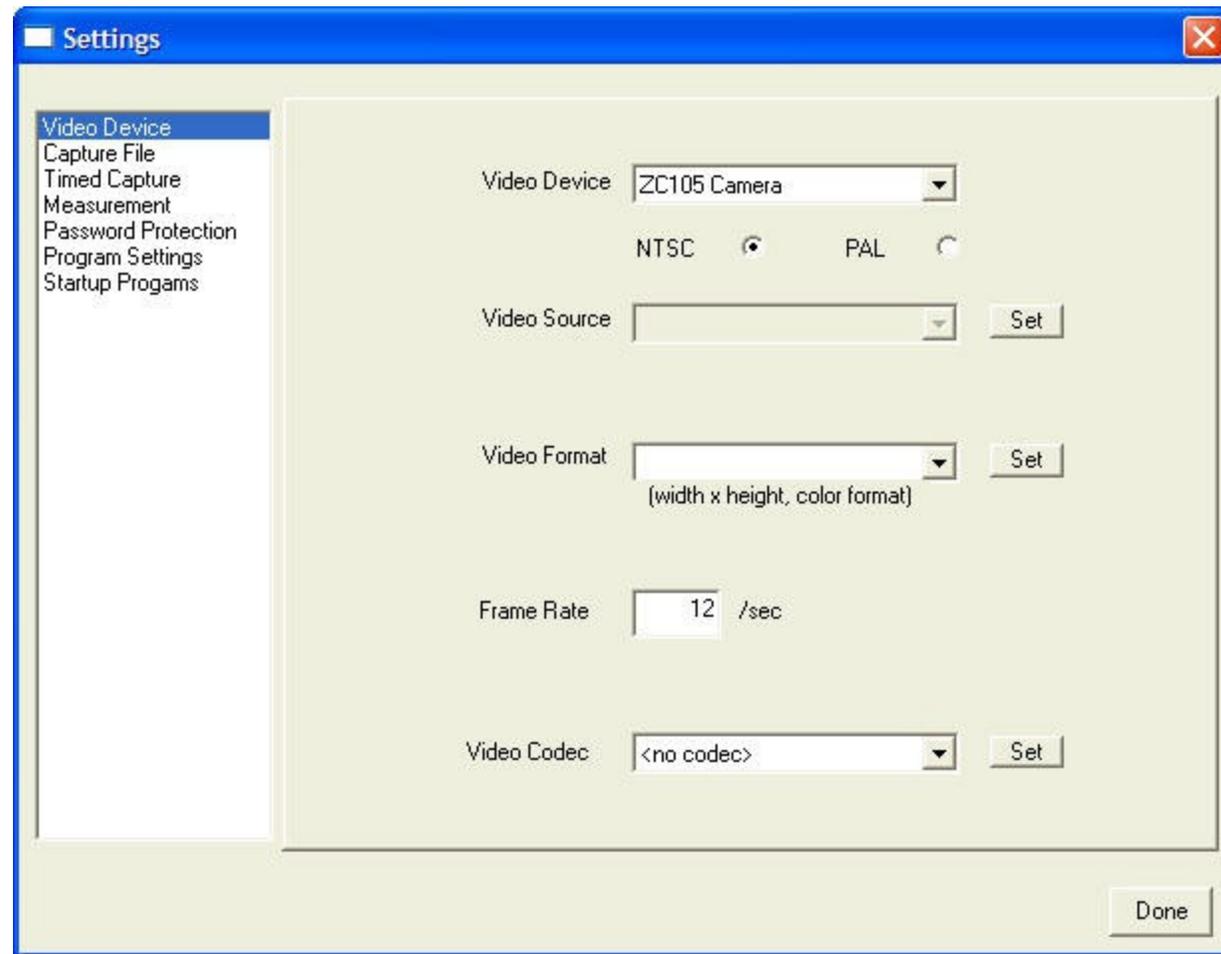
Time Stamp

A special type of label is a time stamp which displays the current time and date. To create a time stamp open the Label Window and type "TIME" (all capital, no quotation marks) for the label text. Next press the Place button. This will place a dynamic time stamp on the screen. Drag the time stamp to the desired position on the screen.



Note about dragging a time stamp: A time stamp must be dragged from the far left side of its region of text.

Settings Control



The Settings Control opens a window which let you change the key settings of the program. The list on the left side of the Settings Window shows different categories of program settings. These categories are:

Video Device: Select and configure the video device.

Capture File: Select the directory into which captured image files are stored. Construct the rules for naming capture files. Select the image editor program which can be used to open image files.

Timed Capture: Set the time delay between frames for time lapse movies and (optionally) a time limit for all movie files.

Measurement Settings: Select the measurement tool to use for live, onscreen measurement.

Password Protection: Set a password to prevent unauthorized users from changing settings or calibration data,

Program Settings: Determine how the main window and video should appear each time the program starts.

Startup Programs: Select other programs to start up at the same time that the imaging software starts.

All of the settings on the "Video Device" page are linked to the video device. This means that when you change the video device, these settings change to those last used with that video device. All other settings are program settings and are restored each time Video Image Express starts.

Print Control



The Print Control allows a user to print or e-mail an image of the screen from within the Video Image Express program. Press the Print button to open the print window.



The print window will display a preview of the image as it will appear on a page. The window also displays a set of buttons at the top left of the window which control how the image is handled. The buttons are:



Close -- close the print window and return to the main window of Video Image Express



Go to -- select the page in a multipage document. This feature is only used when reviewing a multi-page report.



Print -- send the image to the printer. This button will open a standard print window from which the user can select the printer and set the printer options.



E-mail -- send the image as an e-mail. This button will open an e-mail window from which the user can create and send an e-mail with the image as an attachment. See the [e-mail section](#) for more information on how to send e-mails from within Video Image Express



Save -- save the printed page to disk. The page is saved in a special format which can be read, printed, or e-mailed at a later time.

Video Controls



The video control buttons are used to view capture video images in a variety of formats. The format used to capture the image is set using the [Capture Mode Control](#).

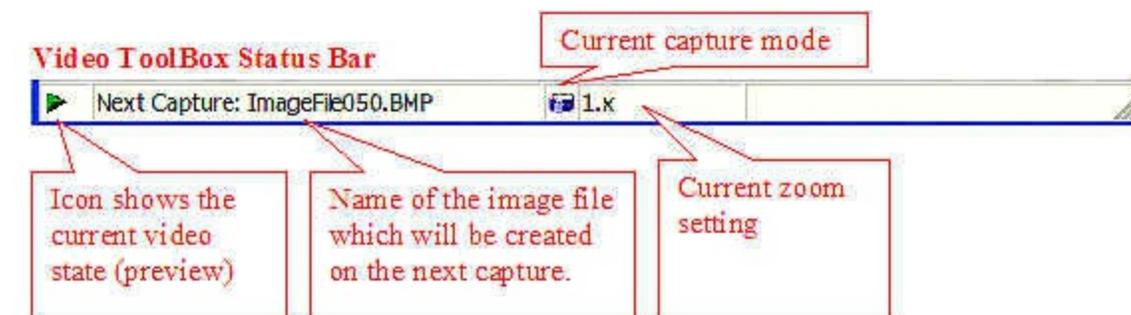
The video control buttons operate as follows:

 **Stop:** Stop the current display or capture function. If the display is currently in preview mode, preview is disabled and the current image is frozen on the screen. If the display is currently in capture mode, then the capture is terminated, the capture file is closed and the last visible image is frozen on the screen.

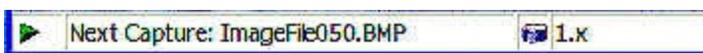
 **Preview:** Display the live video image on the screen.

 **Capture:** Start the capture of the image. The image will be captured in the format set by the capture mode controls (still image, movie, time lapse movie or still image opened in an image editor program).

Information about the current video control settings can be found on the status bar at the bottom of the Video Image Express window.

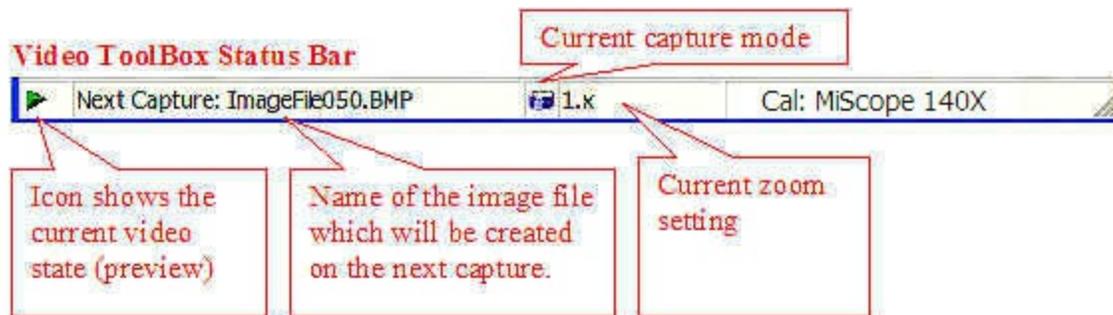


Status Bar



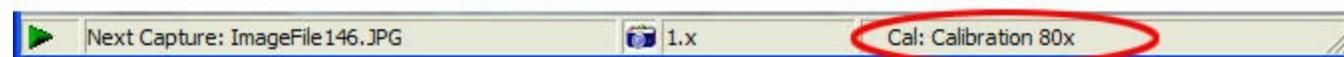
The Video Image Express status bar provides information on the current program settings. A quick glance at the bottom of the main window provides a summary of the primary program settings.

The information is displayed as:

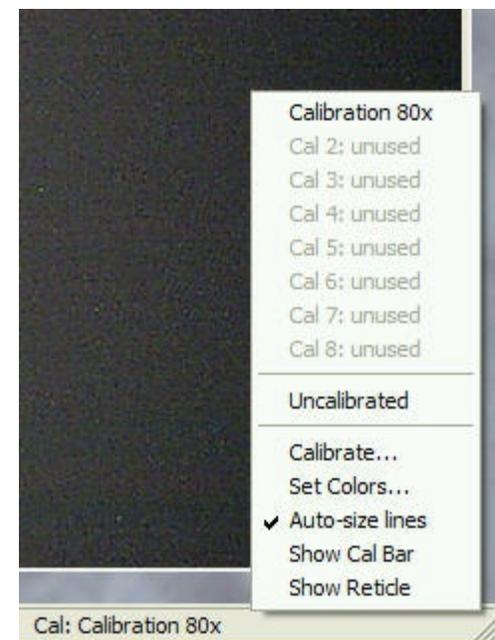


The *current capture mode* icon can be one of the four capture mode icons (still image , movie , time lapse , capture to an image editor ) . If the *capture to an image editor* mode is selected the icon will switch to that of the program which will open and edit the images.

Calibration Status



The Calibration information is located on the right end of the status bar. The calibration section displays the title of the current calibration file. The calibration section is also a popup menu which allows the user to change the calibration settings. Move the mouse over the calibration section and click on calibration text to bring up the menu (below left).



Show/Hide Cal Bar: A calibration bar is a line which is displayed on the lower-right corner of the image to provide an indication of size. The calibration bar is the same color as the measurement color. The color can be changed using the Set Colors... menu option.

Show/Hide Reticle: A user-configurable reticle can be placed directly on the live image. Select the reticle to display the reticle. Then popup the calibration menu again and select "Configure Reticle" to change the way that the reticle is displayed.

Set Colors...: Change the colors for the measurement tools, the measurement text and the calibration bar. Select this menu option to bring up the window to the right. Set the color for the different crosshair markers and the measurement text by pressing the *Set Color...* button. Use the text size menu to change the size of the measurement information text.



Auto-size lines: When this option is selected, the software will increase the size of the measurement tool lines automatically when the magnification becomes too small.

Calibrate...: Calibrates the measurement tools for accurate onscreen measurement. Select this menu option to bring up the calibration window. See the section on [calibration](#) for a detailed description of how to perform a calibration and on how to review the calibration values.

Uncalibrated: Use this to indicate that the measurement tools are uncalibrated. All measurements revert to pixels.

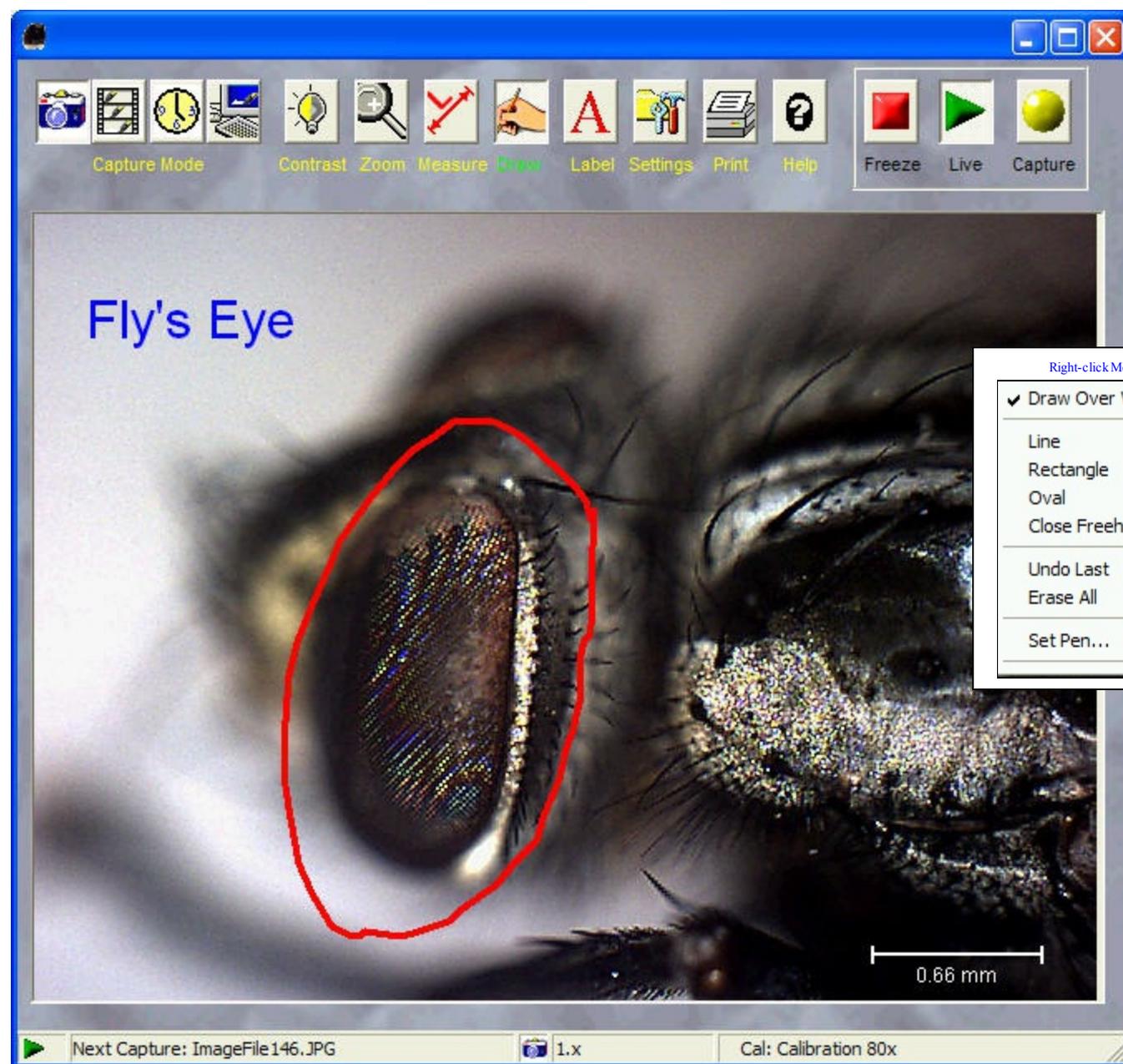
Cal1 .. Cal8 (first 8 lines in the menu): Stored calibration files. Up to 8 different calibration files are stored and are listed by their label text. Select one of the 8 calibration files to apply those calibration values to the current image. The text on the calibration status section of the status bar will change to which calibration file is being used. See more information in the [calibration section](#) of the help.

Draw On the Screen

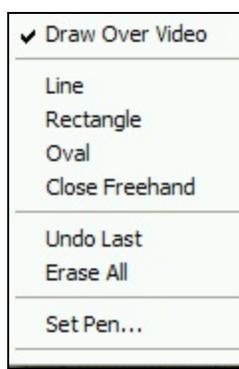
With Video Image Express you can directly on the live video image. Press the Draw button to enable the drawing mode. Now hold down the left mouse button and begin drawing. Whatever you draw is part of any image or movie you create -- the Capture and Copy buttons will record your freehand annotations.

Use the right mouse button to change the pen or erase the screen and start again.

[Tell me more about the Draw Over Video menu functions.](#)



Right-click Menu with Draw Mode Enabled



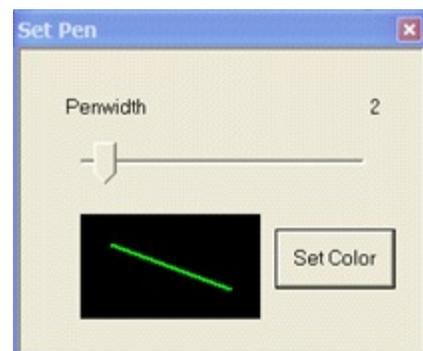
If the user right-clicks the mouse button over the video image while in Draw mode a menu will appear. The right-click menu options are:

Draw Over Video: Select this option (check mark indicated selected) to enable drawing on the live video image. Any previous drawing will become visible when this menu option is selected. Select this option again (which will hide the check mark) to disable drawing and to hide the current drawing.

Undo Last: Undo the last drawn line. A line starts when the left mouse button is pressed down and ends when the left mouse button is release.

Erase All: Erase the entire drawing screen.

Set Pen...: Set the color and width of the pen which is used to draw over the live video. This menu option brings up a separate window which provides control over the drawing pen. The *Penwidth* slider adjusts the width of the pen. Select the *Set Color* button to change the pen color.



Select the "Set Color" button open the color selection window.



Function Keys

Video Image Express supports the following function keys and special shortcuts:

F1

Display the image on the full screen (no windows). Press the F1 key again to return to the normal windows display *F2*

Show the ImageViewer window. **Double-click Freeze Button** Picture-in-picture freeze frame. Double-click the Freeze Button to place the current live image into a freeze frame which is shown in the top-left corner of the live image. Double-click the Freeze Button again to clear the freeze frame. **CTRL-Capture Button** Cropped capture. Press the Control key while pressing the Capture button for a cropped capture. Only the portion of the image visible in the window will be captured **Right mouse click in the main window**
Draw Mode -- Display the draw menu
Measure Mode -- Display the measurement menu

Right mouse click on the Image Viewer thumbnail Display the Image Viewer menu with options to rename, delete, open folder and display picture-in-picture

Image Viewer -- Preview images and movies



Video Image Express includes a separate window for previewing the images and movies captured using Video Image Express. The Image Viewer window will display any image or movie in the current capture folder. The name of the current capture folder is displayed at the top of the Image Viewer window.

The images and movies are displayed as a series of thumbnail pictures within the Image Viewer window. Use the scrollbar along the bottom of the window to scan through the images. Click the mouse on a thumbnail to get information about that image in the Image Info section. Double-click on the thumbnail to open the image file. Right-click on a thumbnail to access the utility menu. The options on the utility menu are:

Rename: rename the image.

Delete: delete the image.

Open folder: open the folder which contains the image

Display picture-in-picture: Copies the image into the freeze frame buffer and displays the image in a picture-in-picture window on the top-left corner of the live image. Double-click the Freeze button to clear the buffer and remove the image.

Video Image Express will open an image with the program it uses for the "open file in another program" feature which is enabled by the



button. Movie files are opened using the default multimedia program (usually Microsoft Media Player).

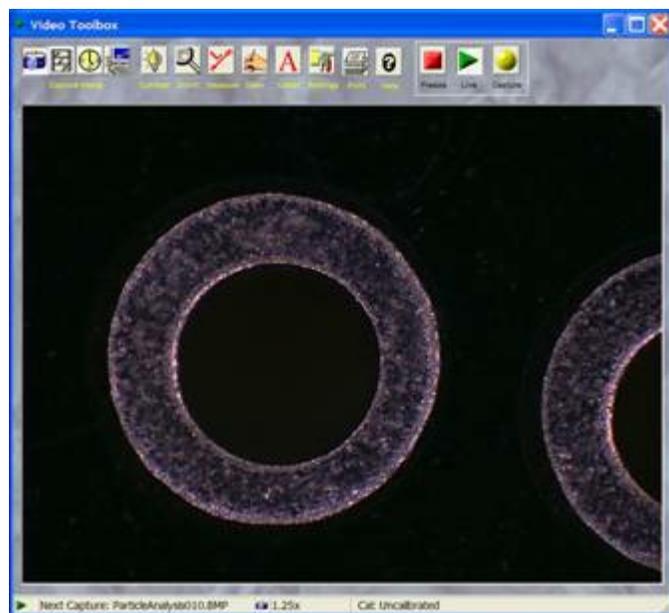
The Image Viewer window can be moved behind the main Video Image Express window, but it cannot be closed. At any time you can use the F2 key to bring it to the front.

How to Calibrate and Make Measurements -- an example using a circular reference object

Video Image Express is capable of precise measurement using a number of different measurement tools. To use the measurement tools it is necessary to calibrate the software with the imaging instrument. You will need to set up your instrument at the magnification at which it will be used for measurement.

For this example, we will use a digital video microscope with a 9 – 65x magnification range. Here we will calibrate our instrument at 65x magnification. The following are the steps used to calibrate the software for precise measurement:

1. Select an object of known size to use for calibration. A good choice, depending on the field of view, is a washer, drilled hole on a circuit board, precision ball bearing or calibration target. If possible, purchase a precision calibration reticule. The object should be 25 – 75% of the field of view to achieve the best precision. Make sure you know the size of the object with good precision.

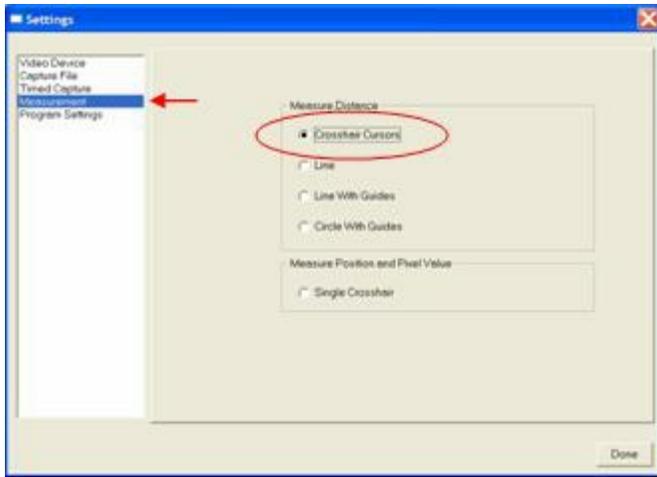


For this demonstration we are using a 1mm circular hole on a circuit board. Our digital video microscope is operating at 65x magnification.

2. Select the settings button to open the settings window.

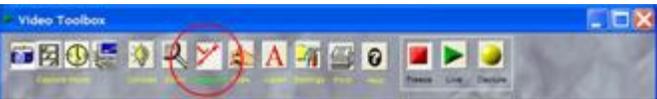


3. Select the measurement option from the list on the left. Choose a measurement tool. For circular objects the *crosshair cursors* are the best tool. For measuring a linear reticule, try the *line with guides*.



For this demonstration we will choose the *crosshair cursors*. Press the Done button when finished.

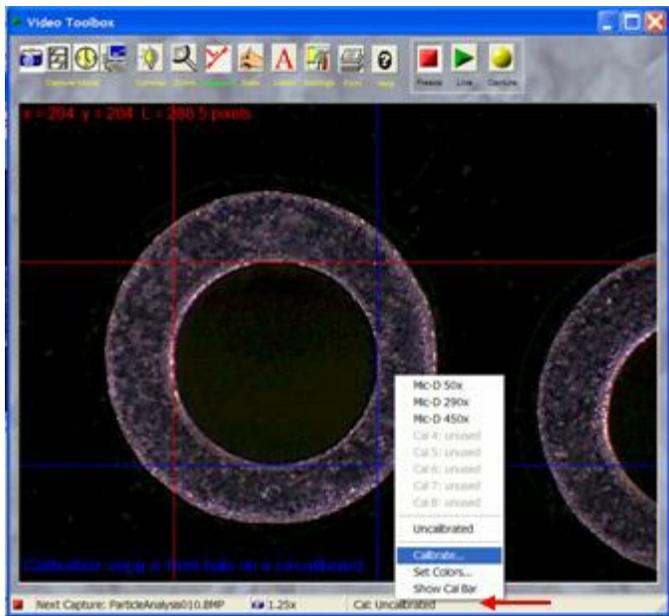
4. Press the measurement button to display the on-screen measurement tool.



5. Position the measurement cursors until they span the calibrated target. The size of the object in pixels is displayed at the top of the image. Click the mouse over either cursor to drag it into position. Click the mouse between the cursors to move them together.

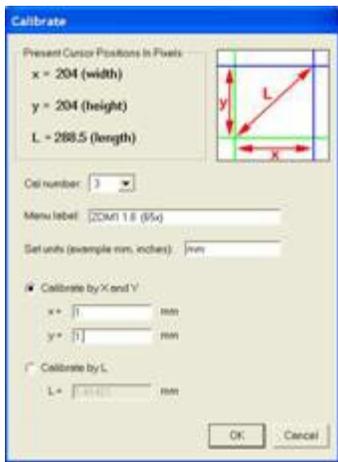
In this demonstration, the *crosshair cursors* are placed along the sides of the circular hole. The x-distance represents the width of the circle; the y-distance represents the height of the circle; the L-distance represents the distance from the red crosshair to the blue crosshair. Note that the L-distance is not relevant to measuring the size of the circle.

6. Move the mouse over the status bar at the bottom of the screen where the label *Cal: Uncalibrated* is located. Notice that the arrow pointer changes to what looks like a menu list. The Cal portion of the status bar is the calibration hot spot. Left click the mouse to bring up the calibration menu. The calibration menu allows you to select a previous calibration setting or to create a new calibration.



In this demonstration we will create a new calibration by selecting the *Calibrate...* option.

7. The calibration window will allow you to create and save a calibration setting. Up to 8 different calibration settings can be saved. The different calibrations might correspond to different objectives on a compound microscope or different zoom settings on a video microscope lens.

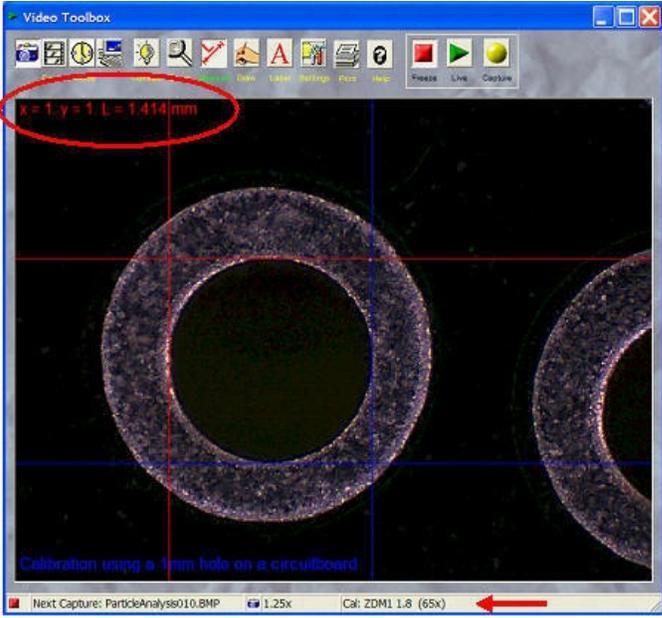


Select a calibration number, and fill in the information for the calibration. Two different kinds of calibrations are possible, labeled “*Calibrate by X and Y*” or “*Calibrate by L*.” For circular objects measured with the crosshair cursors you will use the *Calibrate by X and Y* option. For linear targets measured with the *line* or *line with guides* you will use the *Calibrate by L* option.

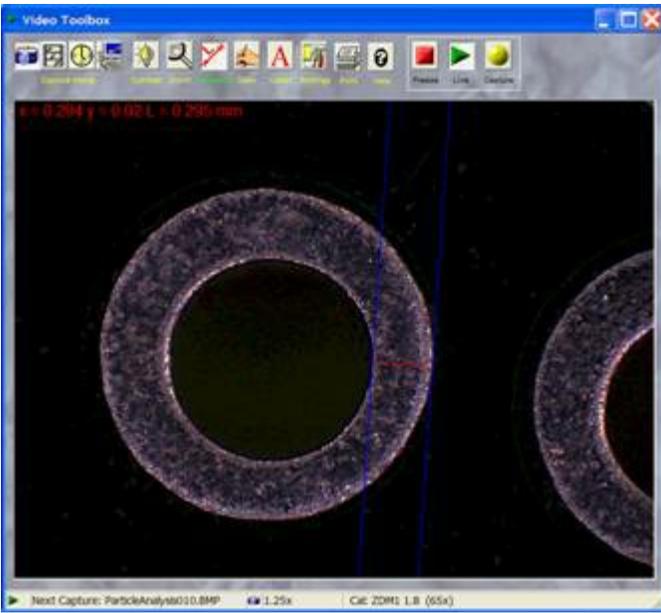
In this demonstration we will use the *Calibrate by X and Y* option. We enter a name in the menu label which will be displayed on the cursor menu. We select mm for our units and enter it into the *Set units* selection. We click on the *Calibrate by X and Y* option and enter the width and height of the circular hole; in this case 1 mm.

When finished press the OK button.

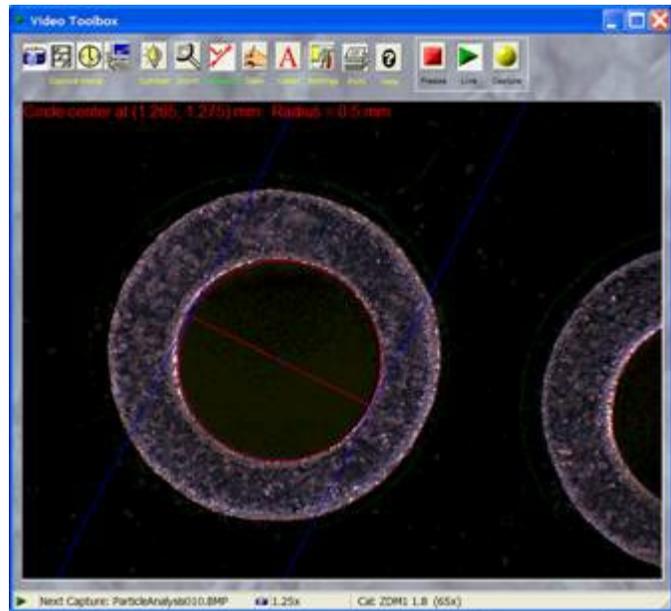
8. The Video Image Express measurement tool is now calibrated. Note that on the status bar at the bottom, the cal now shows the new calibration setting we just created. Note also that the values at the top of the screen now show the circular hole is 1 mm in diameter.



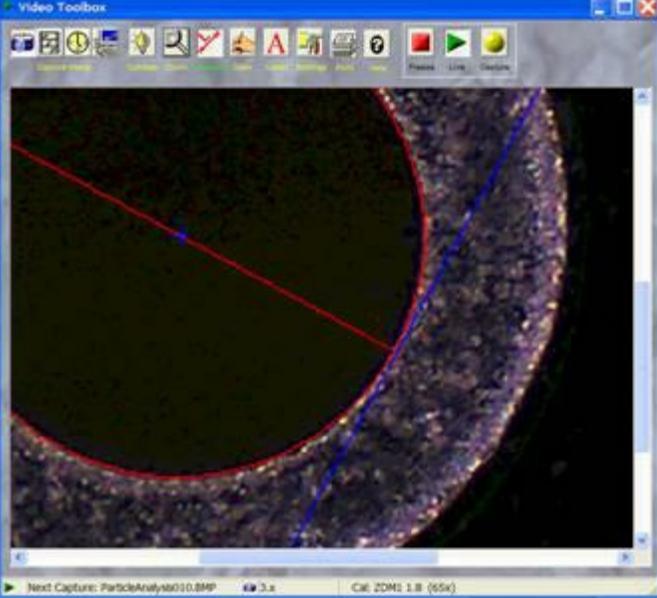
Once Video Image Express is calibrated, the measurement tools can be changed while still displaying calibrated measurement results. Here we switch to the *line with guides* tool to measure the width of the annular ring.



Here we switch to the *circle with guides* tool to measure directly the radius and center of the circular hole on the screen.



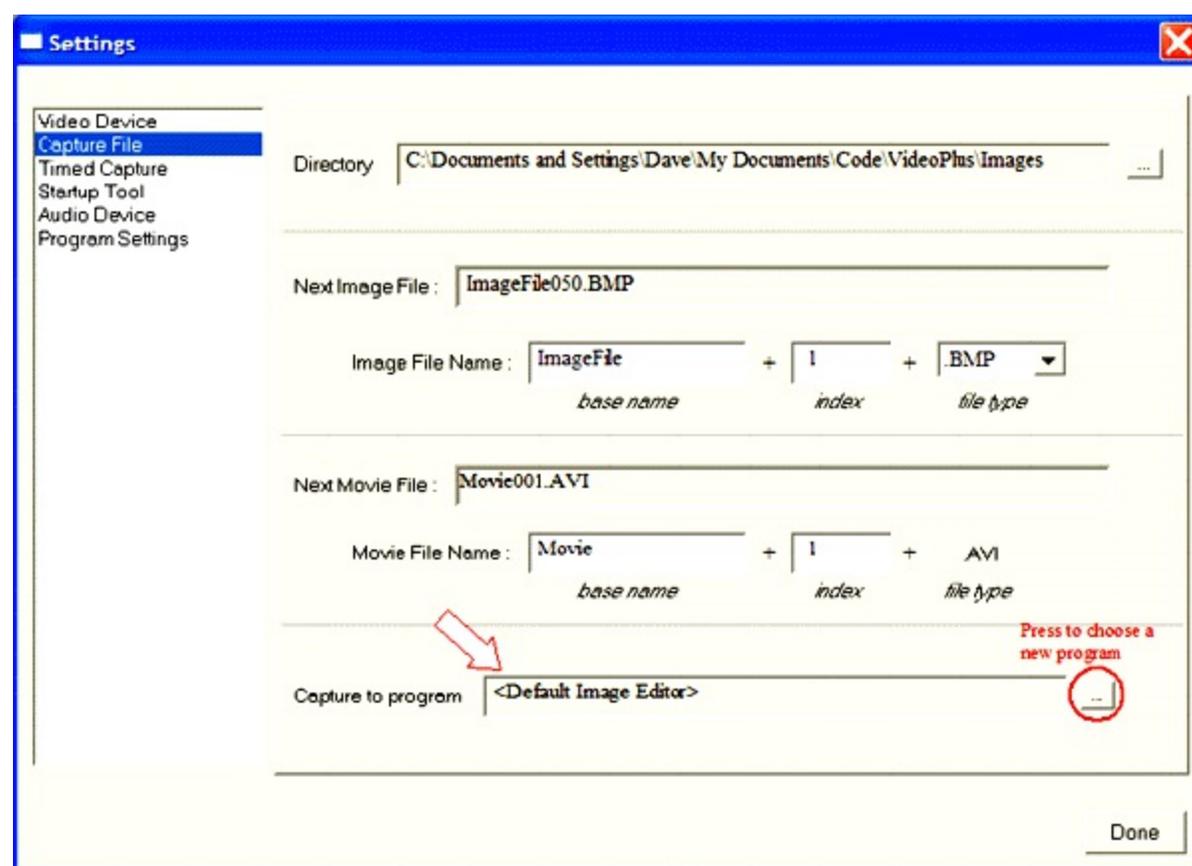
For high precision measurement, you can use the zoom button to increase the magnification of the image. Video Image Express provides a high resolution digital zoom without the pixilation effect found on most other programs (including expensive packages such as Photoshop). Note that the measurement tools are visible and adjustable at all magnifications. Here we carefully position the measurement tool at higher magnification to precisely trace the perimeter of the hole. We can switch between different zoom settings while performing our measurements.



How To Capture An Image Into Photoshop* (or any other image editor).

IMPORTANT NOTE: Make sure that Photoshop is not opened when starting Video Image Express. If Photoshop is opened first Video Image Express may not operate properly. (This is because some versions of Photoshop open the video driver and lock out all other programs.)

1. Press the *Settings Control* button  to open the settings window.
2. Select *Capture File* from the list on the left side of the window. You should now see the following window on the screen.



3. Look at the *Capture to program* option. If the program name next to the *Capture to program* label is not Photoshop.exe (or the name of the desired image editor) then press the selection button (...) to choose a new program. This will bring up a selection window. Navigate to the folder which contains the desired image editor. Photoshop is typically found in "C:\Program Files\Adobe\Photoshop 6.0\" and the program name is usually Photoshop.exe.

4. Press Done

5. Find the Capture Mode buttons and press the *Capture into a program* button .

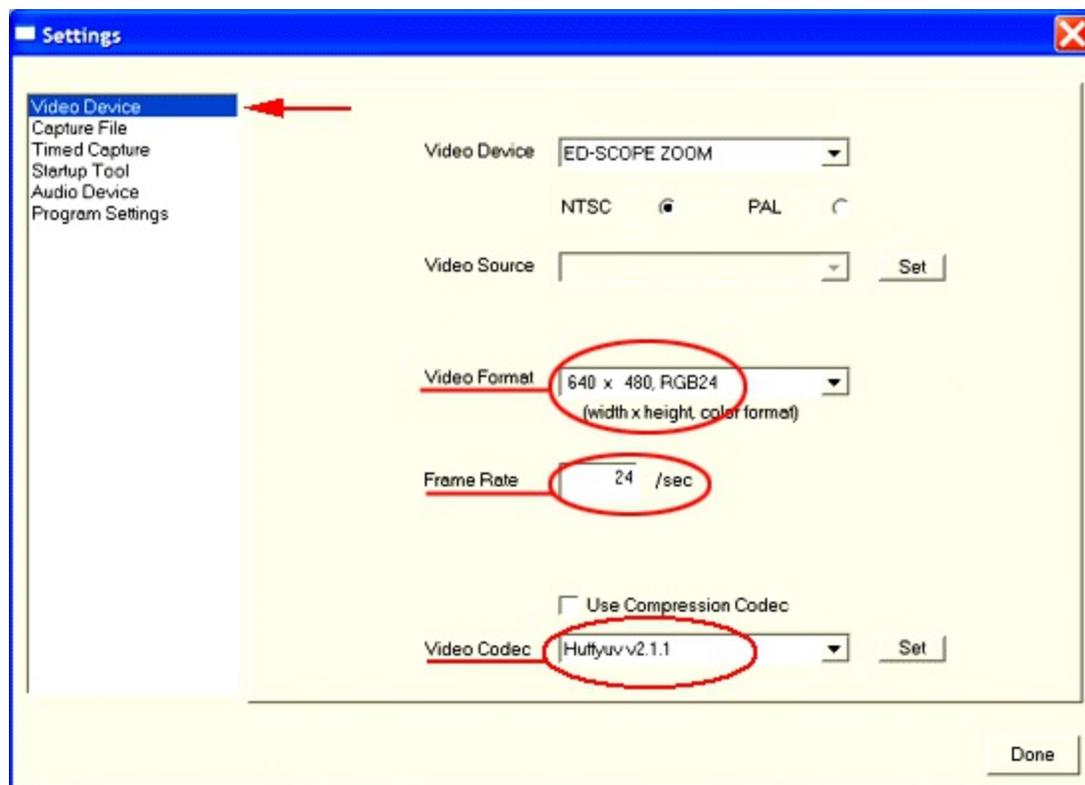
6. Now, anytime you press the *Capture* button  the video image will be saved as a file and then opened into Photoshop.

* PhotoShop is copyright Adobe Systems Incorporated.

How To Capture A Movie At High Frame Rate

Video Image Express provides the ability to capture full speed video from screen to disk. There are a number of factors which will affect the quality of the captured video including, processor speed, hard drive speed, open programs and operating system. However, the most important factors affecting capture quality are the capture settings. Before capturing a movie make sure that the video device is

configured properly. Open the *Settings Control*  and select *Video Device* from the list on the left side.

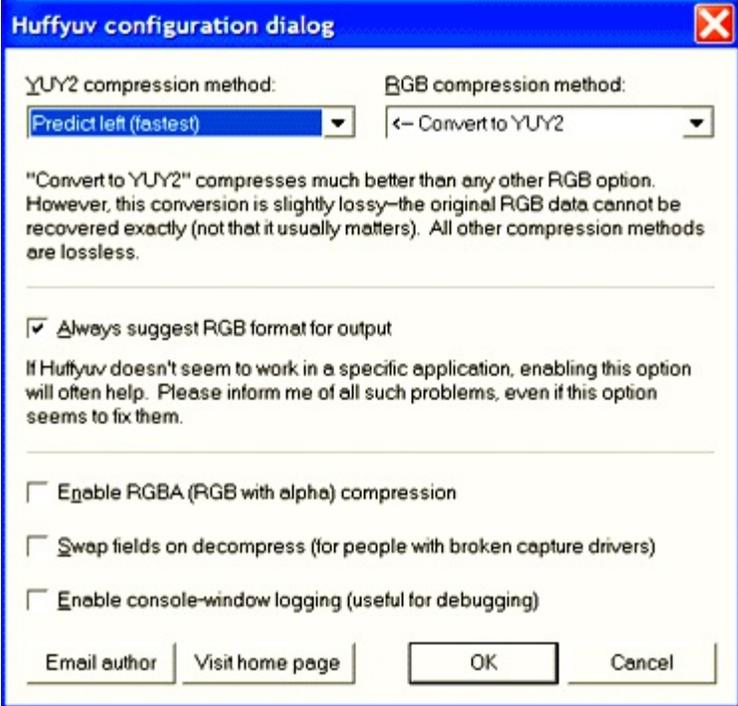


Check that the video source is set to the desired image size. Make sure the frame rate is appropriate. Try to reduce these settings to the lowest acceptable value. Reducing the image size from 640 x 480 pixels down to 320 x 240 pixels reduces the data transfer rate by 4 which increases the movie quality.

Now look at the Video Codec. The best movie quality is obtained without using a codec, however, codecs will reduce the size of the movie file (significantly) and in many instances will improve the capture performance. Remember that the codec must support RGB24 format.

We recommend two video codecs for use with Video Image Express. The best codec we have found is the Pegasus Imaging PICVideo Motion JPEG codec (<http://www.pegasusimaging.com/picvideomjpeg.htm>). Pegasus Imaging offers a discount for non-commercial use of this codec.

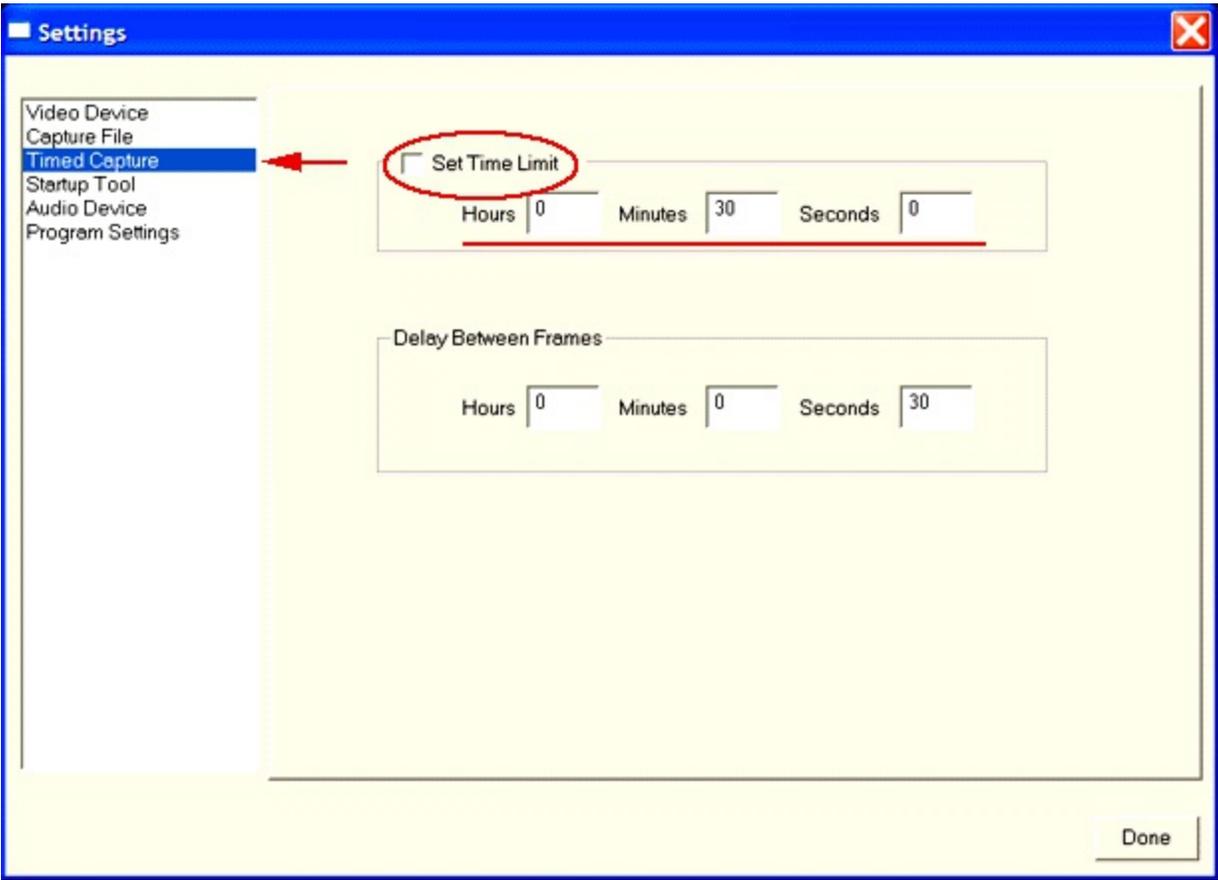
For users who prefer a lower cost alternative, we recommend the HUFFYUV codec (<http://neuron2.net/www.math.berkeley.edu/benrg/huffyuv.html>). This codec is not quite as efficient as the PICVideo codec but the price is significantly less (the author requests a small donation if you decide to use the software) and the quality is still quite good.



Suggested settings for the Huffiyuv codec.

Whatever codec you use, make sure that the settings support RGB24 format. Video Image Express supports only the RGB24 format for capturing movies.

Once the device is set properly, switch to the Timed Capture panel.



If you want to put a time limit on your movie file then check the box next to Set Time Limit and enter the maximum allowable time. Once you start capturing your movie you cannot adjust any of these parameters until the recording is completed. But you can still stop the recording at any time by pressing the Stop button .

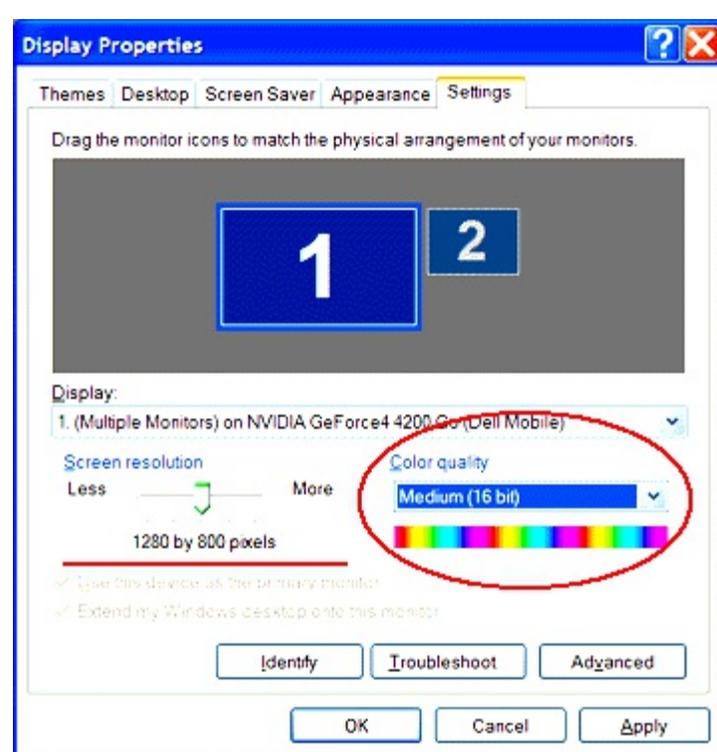
Press the Done button; this will bring you back to the main program window. To capture a movie switch the Capture Mode by pressing the Capture Movie button . You are ready to capture your movie. Press the Capture button to begin making the movie. At this point anything that appears on the screen will be recorded in the movie. This includes Drawing on video, or any effects produced by an installed Video Tool. To stop the recording, press the Stop button  or wait until the (optional) time limit is reached.

How To Further Improve Recording Performance

There are a number of computer settings that effect the recording performance of Video Image Express. In general, a faster computer produces better performance and reduces the number of lost video frames. If your computer has a option to adjust performance, select the option which gives the best performance. If you are using a laptop computer, try to run off the power adapter if possible.

Video adapter settings can also greatly influence the recording performance. A fast video adapter with a lot of memory will also produce improved video recordings. Even your current video adapter can be optimized to increase the video capture speed.

If you open the Start Menu: Settings: Control Panel menu, double-click on the Display icon, and then select the Settings tab at the top of the window, you will find a number of options which can be adjusted to improve the video speed of your computer. The two most important settings are *Screen resolution* and *Color quality*. These settings determine the amount of video memory which is required to display an image on the computer screen. If less memory is required, images can be moved faster and more efficiently.



Reducing the Color quality to Medium (16 bit) can drastically improve the speed at which movies are captured. Reducing the screen resolution can also help improve the recording performance, but Video Image Express cannot work on a screen which is smaller than 800 x 600 pixels.

Video Image Express can automatically switch you display to 16 bit color at startup. Under the Settings Control, locate the Program Settings panel, and check the box labeled "Set Video Monitor to 16 bit Color on Startup."



- Video Device
- Capture File
- Timed Capture
- Startup Tool
- Audio Device
- Program Settings**



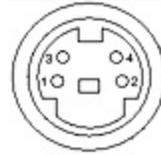
- Remember Window Size and Position
- Remember Zoom Setting
- Set Video Monitor to 16 bit Color on Startup**

Done

How To Capture S-Video

What is S-Video: S-Video is an analog video format in which the luminance and chroma (brightness and color) are sent as two separate video signals. S-Video produces a picture with better quality than composite video (which presents the color video image as a single video signal).

1. Make sure that your video frame grabber or adapter supports S-Video capture. You can identify S-Video by the 4-pin connector which is used to carry the video signal. If you are using a USB or FireWire camera you do not need to worry about S-Video.



S-Video connector

2. Press the Settings Control button .

3. Select (click on) *Video Device* from the list on the left side of the window.

4. Find the Video Source pull down menu. If this menu is enabled and has writing inside then select *S-Video* from the menu. If this menu is disabled and blank then instead press the Set button which will open a new window. Look for an option labeled "Capture Source" and then from the "Select video source" menu select S-Video.

5. Close all open windows except for the main program window.

You should now see the S-Video image on the screen.

How To Send E-mail from Video Image Express

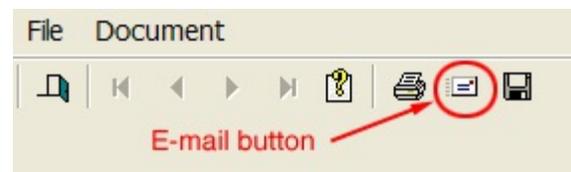
Video Image Express can send e-mails with an image file attached. This makes it easy to share images with other users.

The e-mail feature of Video Image Express is located within the Print window. The following procedure will send the current screen image to any e-mail recipient:

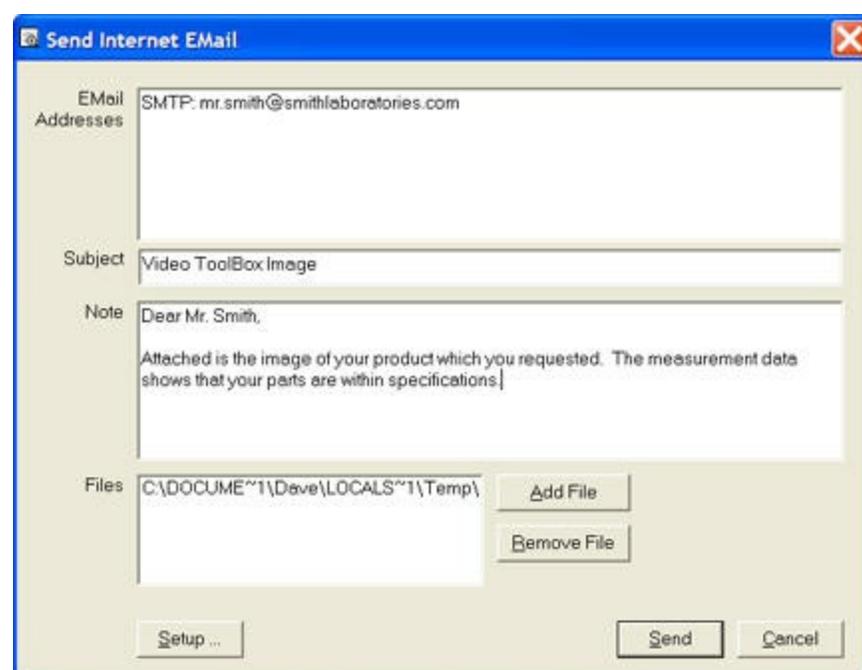
1) Make sure your object is correctly positioned under the microscope or camera and you are satisfied with the image on the screen. You can press the Freeze button to lock the image onto the screen.



2) Press the Print button to open the the print window. The print window will show a preview of the image as it will be placed on the page. The print window also has a series of button along the top left of the window (as shown below).



3) Press the E-mail button to open the e-mail window. The first time you open the e-mail window you will need to configure the program for your e-mail system. See the "[configure e-mail](#)" section for more information.



4) Fill in the information in the Send Internet E-mail window (see below). You will need to fill in the E-mail Addresses of any recipients with multiple names separated by a semicolon. If the recipient is not in your local group then you need to preface their e-mail address with the text "SMTP:" (without the quotation marks).

Optionally fill in the Subject and Note fields. Do not modify the Files field -- the Video Image Express image has already been inserted.

5) Press the Send button to send the e-mail or press the Cancel button to return to Video Image Express without sending the e-mail message.

Configuring the E-mail Options

The e-mail tool must be properly configured to work correctly. The first time the e-mail window is opened a special setup window is displayed. To open that window at a later time press the Setup... button in the Send E-mail window.

To properly configure the e-mail tool, you will need to know some information about your network. Ask a network administrator to assist

you as (s)he should be able to provide this information. Fill in the following information:

Server: The address of the mail server. Ask your network administrator if you do not know this.

Port: Default port is 25. Usually, there is no need to change this.

Reply Address: Your e-mail address which will be listed as the reply address.

Connection: Use "connected directly to the internet" unless you connect through a dialup system. Otherwise select the "Dial the internet" option to choose the Windows RAS dialer. Select the dialup settings and set the UserID and Password required to make a connection.

If Video Image Express dials for a connection, then Video Image Express will also hang up. If the connection has already been made then Video ToolBox will leave the connection intact.

The screenshot shows a dialog box titled "SMTP EMail Options". It has a standard Windows window title bar with a close button. The dialog contains the following elements:

- Server: A text box containing "mail.optonline.net".
- Port: A text box containing "25".
- Reply Address: A text box containing "dzweig@optonline.net".
- Connection options: Two radio buttons. The first is "I am connected directly to the internet." and is selected. The second is "Dial the internet using ...".
- A dropdown menu is located below the radio buttons.
- UserID: A text box.
- Password: A text box.
- Buttons: "Save" and "Cancel" buttons at the bottom.

Reading E-mailed Files

Video Image Express uses a special format when placing an image on a page for printing or e-mailing. The resulting document is in a special format and requires the ddoc.exe program to read it. The installer for this program is found in the distributable folder (in the same folder as Video Image Express) and can be freely distributed to anyone who needs to view your e-mails. The full installer is available on the internet at <http://dickinson.basicguru.com/files/ddocrun.exe>.

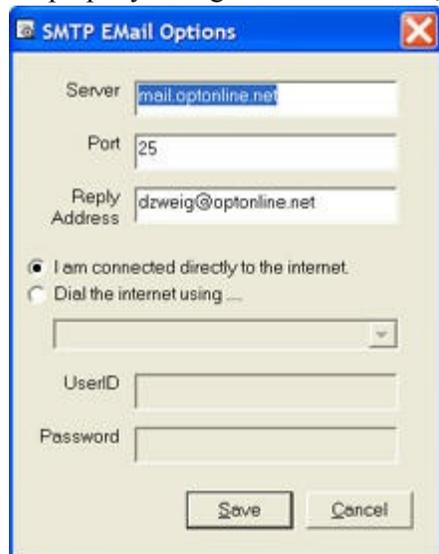
Why does Video Image Express require a separate program to read the e-mail?

Until recently it was possible to create a portable viewer document which could display and print itself and which could be shared among users. This changed when internet viruses became common. The most popular e-mail programs cannot distinguish between a self-viewing document and a virus so they prevent both from being e-mailed. To overcome this problem Video Image Express no longer includes the small viewing program in each e-mail. Instead it can be downloaded and installed from <http://dickinson.basicguru.com/files/ddocrun.exe> or you can distribute the ddocrun.exe file included with Video Image Express.

Configure E-mail

The e-mail tool must be properly configured to work correctly. The first time the e-mail window is opened a special setup window is displayed. To open that window at a later time press the Setup... button in the Send E-mail window.

To properly configure the e-mail tool, you will need to know some information about your network. Ask a network administrator to assist you as (s)he should be able to provide this information. Fill in the following information:



The screenshot shows the 'SMTP Email Options' dialog box. The 'Server' field contains 'mail.optonline.net', the 'Port' field contains '25', and the 'Reply Address' field contains 'dzweig@optonline.net'. The 'I am connected directly to the internet.' radio button is selected. Below it is a dropdown menu. At the bottom are 'UserID' and 'Password' fields, and 'Save' and 'Cancel' buttons.

Server: The address of the mail server. Ask your network administrator if you do not know this.

Port: Default port is 25. Usually, there is no need to change this.

Reply Address: Your e-mail address which will be listed as the reply address.

Connection: Use "connected directly to the internet" unless you connect through a dialup system. Otherwise select the "Dial the internet" option to choose the Windows RAS dialer. Select the dialup settings and set the UserID and Password required to make a connection.

If Video Image Express dials for a connection, then Video Imaging Express will also hang up. If the connection has already been made then Video Imaging Express will leave the connection intact.

Frequently Asked Questions

1. I'm not getting a live image. What's wrong?

Before doing anything else, exit from the program and quit out of all other programs. Some programs (such as PhotoShop) connect to the video driver through a TWAIN interface and lock out all other programs from accessing the video. Now start Video Image Express and check for a live image. If this solves the video problem, you can experiment to find which programs are locking the video driver. Make sure those programs are not running when you start Video Image Express.

If there is still a problem, make sure that a video source is connected to the computer. If the source is a USB or FireWire camera, make sure the camera is plugged into the proper connector and is getting power. If the video source is a camera -- connected to the computer through a frame grabber or video adapter -- make sure the frame grabber/adapter is connected properly and that the camera is getting power. Next, open the Settings Control and check the Video Device panel. Make sure that the Video Source matches the camera. A common problem is the camera is connected through S-Video but the software is set to Composite Video. Make sure all the settings look good.

If you still don't see the live video try changing the Video Format. Switch to a different resolution and a different video format. Change the frame rate. If the video is still missing, exit the Settings Control and quit the program. Now restart the program to see if this changes anything.

2. The video image updates very slowly or freezes up. How can I fix it?

This problem occurs when the frame rate is too slow or too fast for the video device, or if the computer has a limited amount of video memory. To change the frame rate open the Settings Control and select *Video Device* from the list on the left side of the window. Check your video device manual to find the best frame rate for your device. Here is a list of appropriate frame rates:

- USB 1.1 -- Video Size 640 x 480 pixels: frame rate < 15 /sec.
Video Size 320 x 240 pixels: frame rate 20 - 30 /sec.

- USB 2.0 -- Video Size 2048 x 1536 pixels (3.1 megapixels): frame rate 1 - 6/sec.
Video Size 1600 x 1200 pixels (2.0 megapixels): frame rate 5 - 10/sec.
Video Size 1280 x 1024 pixels (1.3 megapixels): frame rate 10 - 15/sec.
Video Size 640 x 480 pixels: frame rate 20 - 30 /sec.
Video Size 320 x 240 pixels: frame rate 30 /sec.

If changing the frame rate does not solve the problem you need to reduce the video memory requirements. From the Windows Start menu select Settings -> Control Panel. Find the Display icon and double-click to change the display settings. Select the Settings tab along the top of the window. Where it says color quality select Medium (16 bit) and press the OK button. You can tell Video Image Express to automatically change the color quality setting when the program starts by doing the following:

1. From within the Video Image Express program press the Settings button.
2. Select Program Settings from the list on the left.
3. Check the box next to "Set Video Monitor to 16 bit Color on Startup" and press the Done button.

If the video image still updates slowly or freezes, try reducing the screen resolution. From the Windows Start menu select Settings -> Control Panel. Find the Display icon and double-click to change the display settings. Select the Settings tab along the top of the window. Where it says screen resolution, slide the slider control towards the less side to reduce the resolution. Do not set the resolution smaller than 800 x 600. Finally press the OK button.

3. I opened a saved image with another program but the image looks terrible. What can I do?

First check to make sure that the image size is set to 100%. Resizing an image can cause distortions and produce pixelation artifacts. Once the image size is set to 100% the image will look just as it did in Video Image Express.

4. I'm trying to record movies but they look blurry and the playback is not smooth. What am I doing wrong?

See the separate document on recording video for a complete discussion of video record. The quality of captured video is dependent on the settings used. The typical Windows computer has 6-10 video compressors installed. Some of these do a very good job in recording the video; others are better for playback quality. In addition the capture rate can be limited by a number of factors including processor speed, hard drive speed, open programs and operating system. If the video is choppy you may need to change the video compressor and the data-transfer rate.

5. *I need to record my video in MPEG format to reduce the file size. Is that option available in Video Image Express?*

At the present time MPEG recording is not supported by Video Image Express. MPEG format has many advances, but it has one significant drawback -- it makes editing the movie very difficult. The current movie format -- AVI or Audio Video Interface -- records the video image exactly as it is seen on the screen. This means that the exact screen image can be recovered from any frame of the movie. MPEG format is a lossy format -- the screen image has been approximated to eliminate "unnecessary portions" and reduce the size needed for storage. Of course, what is unnecessary to the software may not be unnecessary to you.

If you want to edit an MPEG movie -- maybe add some nice labels and adjust the brightness and color -- the movie must be converted to another format (usually AVI), edited, and then converted back to MPEG. This will result in the removal of even more unnecessary portions of the movie. If you do this enough times, the movie can become unrecognizable.

If you need to convert the movie to MPEG format, you are best off doing any editing first and doing the conversion at the very end. There are a number of commercial programs which can perform the conversion. If you want a free tool, take a look at avi2mpeg1 -- distributed under a GNU license (<http://home.cogeco.ca/~avi2vcd/>). We have used this tool for some time (along with other commercial products) and have been satisfied with the results.

Nevertheless, look for an MPEG capture and conversion feature in a future release of Video Image Express.

Technical Support

Detailed help information is available through the online help file. If you require additional assistance please contact our technical support staff.

Contact:

Video Image Express
Larkin Imaging Group
Phone: 203-393-9303

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Overview of Video Image Express

Video Image Express is software for scientific video imaging. Video Image Express works with analog and digital cameras and microscopes (analog cameras require a frame grabber or video adapter). The software provides all the features you need to display and capture video images. Video Image Express can be used to capture still photos, movies or time lapse sequences.

Video Image Express can also capture images directly into any image editing software -- such as Photoshop[®] or Paintshop Pro^{®} -- for measurement, marking, and annotation.*

The Video Image Express interface can be divided into the following sections. Click on a section title to learn more about that feature.

[Capture Modes](#)

[Contrast Control](#)

[Zoom Control](#)

[Measure Control](#)

[Draw Control](#)

[Label Control](#)

[Settings Control](#)

[Video Device Settings](#)

[Capture File Settings](#)

[Timed Capture Settings](#)

[Measurement Settings](#)

[Program Settings](#)

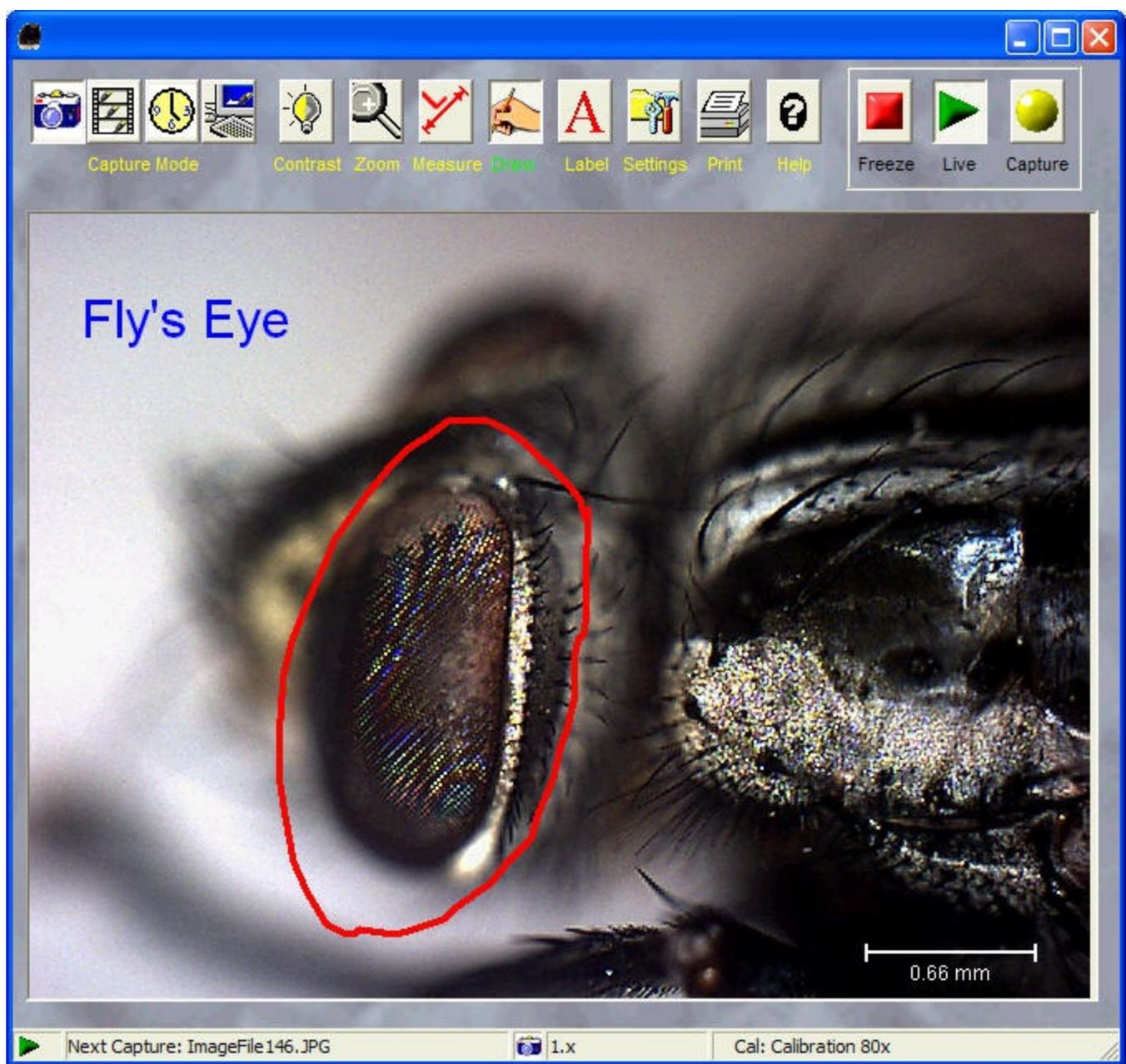
[Video Mode Controls](#)

[Draw On The Live Video](#)

[Function Keys & Shorcuts](#)

[What's New in Version 2.06](#)

If you don't see the feature which interests you then check ["What's New in Version 2.06"](#)



* Photoshop and Paintshop Pro not included.

Capture Mode



Capture mode buttons let the user choose how to record the images seen in Video Image Express. The capture mode options allow the user to capture the live image as a(n):

 *Image file*: Capture the image seen on the screen, and store it in bitmap (.bmp) or JPEG (.jpg) format. Use the Settings button to set the name of the file and directory.

 *Movie file*

: Create a movie of the video as seen on the screen. The movie file is stored in the AVI (.avi) format; a standard windows file format which can be played back using the Windows Media Player[®]. Use the Settings button to configure the movie file. Press the *Stop* button to end the movie.

 *Time lapse movie*

: Create a time lapse movie of the video as seen on the screen. A time lapse movie consists of a movie created by capturing a single movie frame periodically. The time delay between movie frames can be set to one second or longer. The software will continue to capture frames until the Stop button is pressed or until the time limit is reached.

 *Image file opened in an image editor*

: Capture the image seen on the screen, store it and then open it in an image editor program. Use the Settings button to select a image editor. The icon on the status bar will change to indicate the program which will be used when the image is captured.

Zoom Menu



- ✓ 1X
- 2X
- 3X
- 4X
- Fit to window

- Full screen

The zoom menu allows the user to adjust the size of the video image as displayed on the screen. The user can select a fixed zoom scale up to 4X.

The user can also select Fit to window to resize the video image to fill the main window.

Select the Full screen menu option to resize the main window to fill the entire computer screen. Select the Full screen menu option again to restore the main window to its original size.

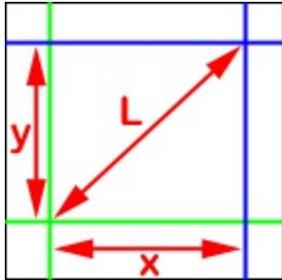
The Zoom feature is especially useful when combined with the measurement tools. For precise measurement, zoom in at 2 -3X magnification to accurately position the measurement tool on the image.



The measurement control allows the user to make measurements directly over the live video image. This makes measurement fast and easy and eliminates the extra steps of saving and recalibrating that is required by many other image editing programs.

To enable on-screen measurement, press the Measure Button. A measurement tool will appear on the screen and a distance legend will appear in the upper left corner of the image. Different measurement tools are available from the [Settings window](#). The measurement tools are also available by right-clicking on the live image when the measurement control is enabled.

There are two different types of measurement tools:



Drag Tools

Drag tools are active measurement tools. You can drag them across the screen to make measurements, or click and drag the mouse to position the tool. The following drag tools are available:

Crosshair Cursors:	Displays a pair of cross hairs. Click and drag on top of each crosshair to move it, or click and drag in the area between the crosshair to move them both together.
Line:	Draws a line on the image. Click and hold the left button to start the line. Drag to draw the line. Release the mouse button to end the line. Once a line is drawn, click and drag on the end to resize the line or click and drag on the interior of the line to move it.
Line with Guides:	Draws a line with perpendicular guides on each end. Click and hold the left button to start the line. Drag to draw the line. Release the mouse button to end the line. Once a line is drawn, click and drag on the end to resize the line or click and drag on the interior of the line to move it.
Circle with Guides	Draws a circle with perpendicular guides and a line to mark the drag points. Click and hold the left button to start the circle. Drag to draw the circle. Release the mouse button to end the circle. Once a circle is drawn, click and drag on the end of the diameter line to resize the circle or click and drag on the interior of the circle to move it.
Angle	Draw a triangle segment which shows an angle. Click and hold the left button to draw the first line. Release the mouse and continue to drag to draw the second line. Click the mouse to end the triangle segment. Move the cursor over the figure to drag it, or move the cursor over an end or corner to reposition it.
Single Crosshair: (position & value)	Draws a single crosshair on the screen. Provides information about the position of the crosshair and the color information for the image pixel located directly beneath the crosshair.

Click Tools

Click tools create permanently positioned measurements. Once a measurement is placed with a click tool, it cannot be dragged or repositioned. The following measurement click tools are available:

Two-point line <i>(3 mouse clicks)</i>	Click the mouse at the location of each end point. Then click the mouse at the location for the label. A line will be drawn with the current pen color and line size.
Three-point angle <i>(4 mouse clicks)</i>	Click the mouse at the first end, inside corner, and second end point for the triangle segment. Finally click the mouse at the location for the label. The triangle segment will be drawn with the current pen color and size.

Right-Click Measurement Menu

Drag Tools
Crosshair Cursors
Line
✓ Line with Guides
Circle with Guides
Angle
Pixel Value Crosshair
Click Tools
2 Point Line
3 Point Angle
4 Point Angle
3 Point Circle
4 Point Circle
3 Point Radius
4 Point Radius
Set Colors...
ScreenPrint Measurement

Four-point angle
(5 mouse clicks)

Click the mouse twice to identify the first line. Click the mouse twice to identify the second line. Click the mouse a fifth time to position the label. The two lines will be drawn with a label indicating the angle between them.

Three-point circle
(4 mouse clicks)

Click the mouse three times on the perimeter of a circle. Click the mouse a fourth time to locate the label. A circle will be drawn with a label to indicate the radius.

Four-point circle
(5 mouse clicks)

Click the mouse four times on the perimeter of a circle. Click the mouse a fifth time to locate the label. A circle will be drawn with a label to indicate the radius.

Three-point arc
(4 mouse clicks)

Click the mouse three times on the perimeter of the arc. Click the mouse a fourth time to locate the label. An arc will be drawn between all the points, with a label to indicate the radius.

Four-point arc
(5 mouse clicks)

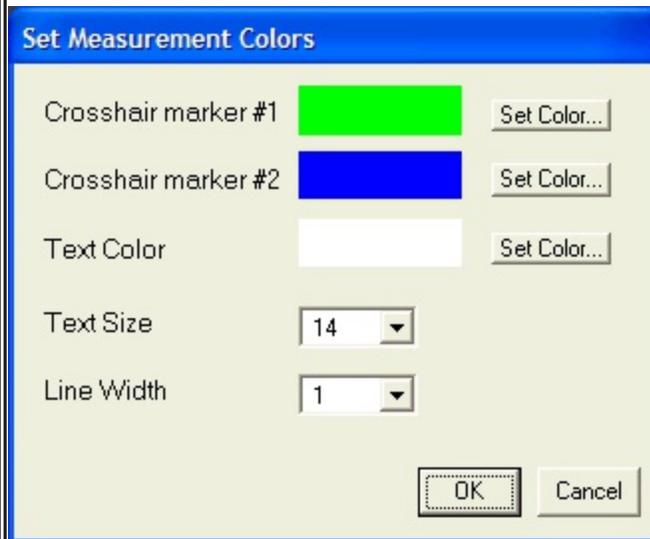
Click the mouse four times on the perimeter of the arc. Click the mouse a fifth time to locate the label. An arc will be drawn between all the points, with a label to indicate the radius.

Measurement Menu (Right-Click the Mouse)

Right-click the mouse while the measurement control is active to access all measurement tools and also the following additional functions:

Set Colors...

Set the colors, line size and font size (and color) for the measurement tools through the following window:

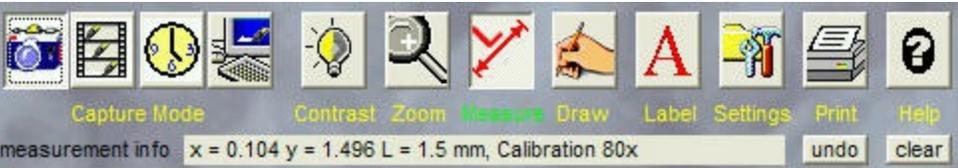


ScreenPrint Measurement

This option is only available for measurement drag tools. Lets you freeze a measurement on the screen making it permanent. To use this option position the drag tool where you want it to be displayed. Position the cursor at the location where the label should be displayed. Right-click the mouse to access the measurement menu, and select "ScreenPrint Measurement." A permanent measurement will be placed on the image

Measurement Status Window and Control

When the measurement control is activated, a "measurement info" status window will appear

<p>between the main buttons and the live image window. The status window contains the following parts:</p>	
<p>Information Bar</p>	<p>The information bar provides instructions on how to use the active click tool, or shows the current measurement information.</p>
<p>Undo button</p>	<p>The undo button will erase the last permanent measurement made with a click tool.</p>
<p>Clear button</p>	<p>The clear button will erase all permanent measurements made with a click tool.</p>

The measurement legend will show the following information for the drag tools:

<p>Crosshair Cursors:</p>	<p>Displays X (horizontal) distance, Y (vertical) distance and L (the diagonal length) between the crosshair cursors.</p>
<p>Line:</p>	<p>Displays X (horizontal) distance, Y (vertical) distance and L (the length) of the line drawn on the screen.</p>
<p>Line with Guides:</p>	<p>Displays X (horizontal) distance, Y (vertical) distance and L (the length) of the line drawn on the screen.</p>
<p>Circle with Guides</p>	<p>Displays the location of the center of the circle ([0,0] is the top-left corner of the image) and the circle's radius .</p>
<p>Angle</p>	<p>Displays the absolute angle between the two lines of the triangle segment.</p>
<p>Single Crosshair: (position & value)</p>	<p>Displays the location of the crosshair ([0,0] is the top-left corner of the image) and the RGB color below the crosshair.</p>

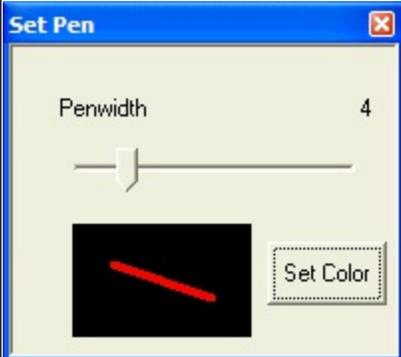
Draw Control



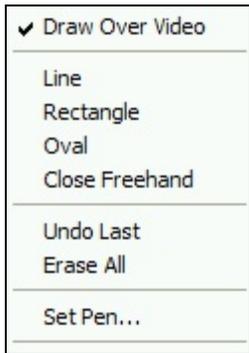
With Video Image Express you can directly on the live video image. Press the Draw button to enable the drawing mode. Now hold down the left mouse button and begin drawing. Whatever you draw is part of any image or movie you create -- the Capture button will record your freehand annotations.

Right-click the mouse button to access the Draw menu. Press the Draw button again to hide the drawing.

Draw Functions:

No function selected	When no function is selected the freehand drawing tool is active. Hold down the mouse button to draw anywhere on the live image.
Line	Click and drag the mouse to draw a straight line
Rectangle	Click and drag the mouse to draw a rectangle
Oval	Click and drag the mouse to draw an oval
Close Freehand	Closes the last freehand shape drawn
Undo Last	Erase the last shape or line segment. Repeat to remove additional segments
Erase All	Erase all drawings.
Set Pen...	Display the following window to adjust the pen color and line width settings 

Right-Click Draw Menu



Note: The Draw and Measure functions do not work at the same time. You can switch between measurements and annotations using the Draw and Measure buttons.

[Tell me more about the Draw Over Video menu functions.](#)

Label Control



The Video Image Express label control allows the user to place a label or marker anywhere on the screen using any font and color. Once a label is placed it can be moved by dragging the label on the screen.

Create a Label

Click on the label button to open the Set Label window. This window will allow you to set up to 6 labels or markers and place them on the live image. After a label or marker is placed on the screen you can drag it into position.

Select the label number (1-6) from the label menu. The program will automatically select the next unused label number when the window opens.

To set a text label click the mouse on the Text option and then type the text in the edit area below. Set the font, font size and font color for the label. Make sure the visible box at the top is checked so that the label will be visible. To place the label on the screen press the Place button. To remove a label from the screen press the Remove button.

Create a Marker

Ten pre-designed markers are also available. To select a marker press the button which the chosen marker shape. Set the marker size and marker color. Finally press the Place button to place the marker on the screen.

Reposition a Label or Marker

Once a label has been placed on the screen it can be repositioned by "click-and-drag."

Edit a Label

The Set Label window can also change a label already on the screen. To edit a current label you can 1) press the Label Control button and select a label number from the menu at the top or 2) making sure the Measure and Draw functions are off, double-click the mouse on the label to open the Set Label window.

Make any changes to the label and then press the Place button to update the on-screen label.

Delete a Label

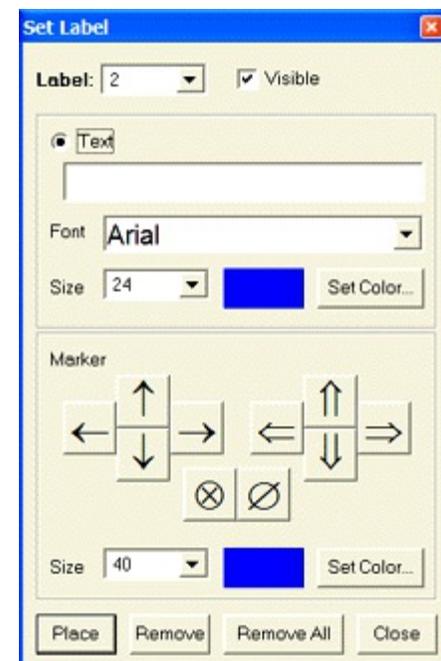
To delete a label select the label number from the Label Number menu and press the Remove button. Use the Remove All button to remove all labels from the screen.

Make a Label Invisible

A label can be temporarily hidden by unchecking the Visible box at the top of the Label Window.

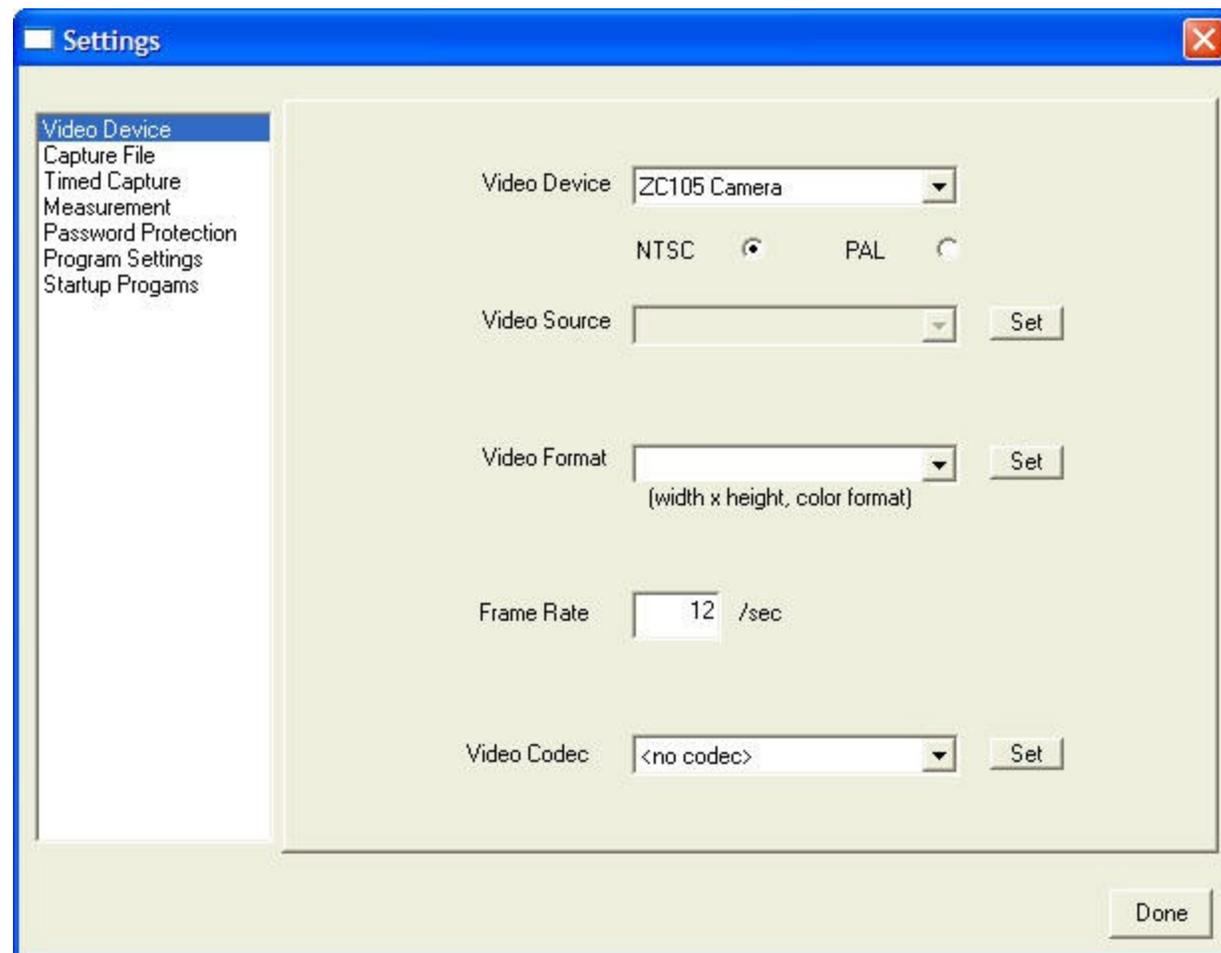
Time Stamp

A special type of label is a time stamp which displays the current time and date. To create a time stamp open the Label Window and type "TIME" (all capital, no quotation marks) for the label text. Next press the Place button. This will place a dynamic time stamp on the screen. Drag the time stamp to the desired position on the screen.



Note about dragging a time stamp: A time stamp must be dragged from the far left side of its region of text.

Settings Control



The Settings Control opens a window which let you change the key settings of the program. The list on the left side of the Settings Window shows different categories of program settings. These categories are:

Video Device: Select and configure the video device.

Capture File: Select the directory into which captured image files are stored. Construct the rules for naming capture files. Select the image editor program which can be used to open image files.

Timed Capture: Set the time delay between frames for time lapse movies and (optionally) a time limit for all movie files.

Measurement Settings: Select the measurement tool to use for live, onscreen measurement.

Password Protection: Set a password to prevent unauthorized users from changing settings or calibration data,

Program Settings: Determine how the main window and video should appear each time the program starts.

Startup Programs: Select other programs to start up at the same time that the imaging software starts.

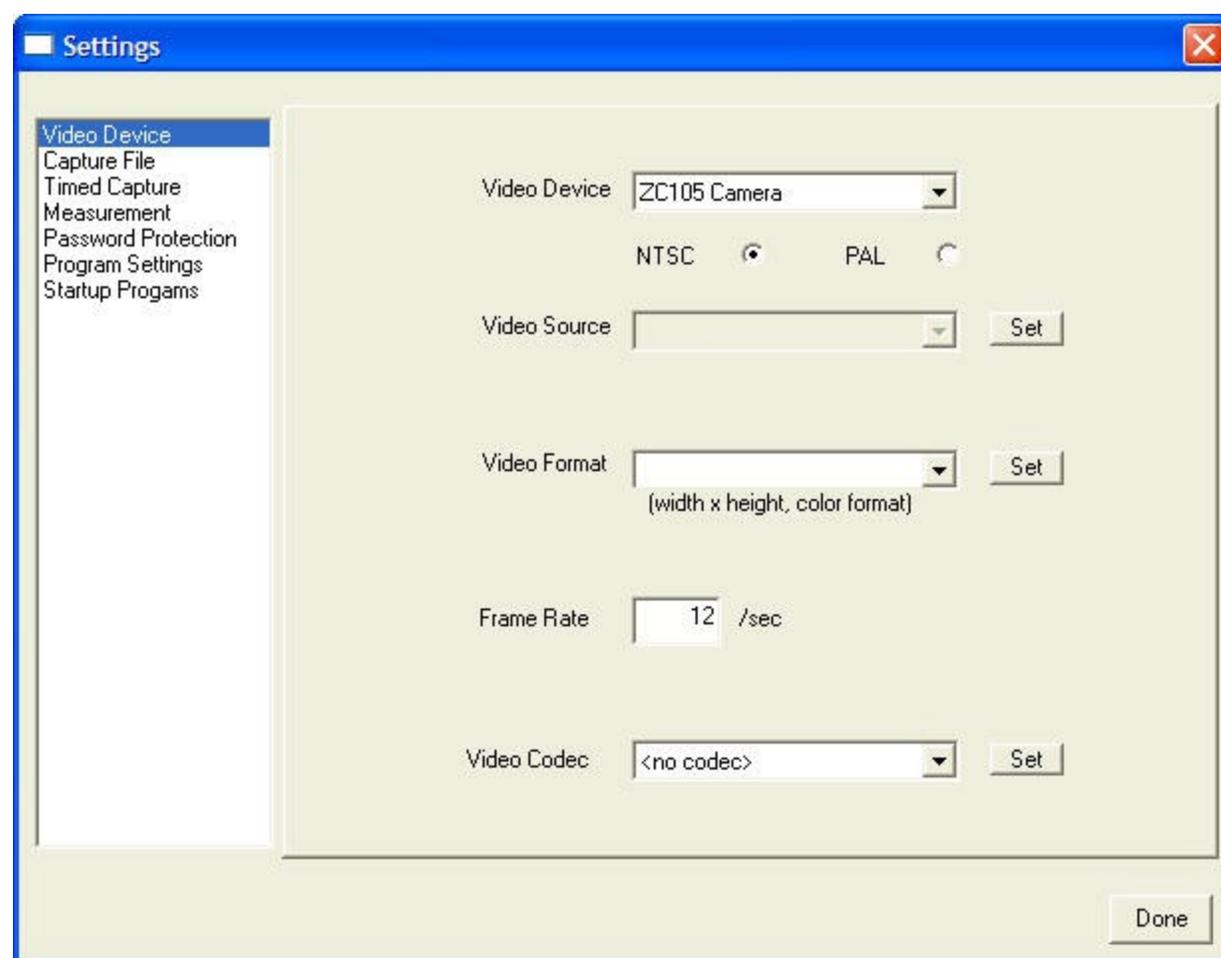
All of the settings on the "Video Device" page are linked to the video device. This means that when you change the video device, these settings change to those last used with that video device. All other settings are program settings and are restored each time Video Image Express starts.

Settings Control Options

The Settings Control allows the user to adjust many of the video capture features of Video Image Express. The program features are divided into 6 categories which are listed on the list side of the Settings window. The categories are: Video Device, Capture File, Timed Capture, Measurement, Password Protection, Program Settings, and Startup Tool (unused), Audio Device, and Program Settings. When the user selects a category, the Settings window will display a set of controls which can be used to configure the program. See below for an explanation of each category

Settings Control: Video Device Settings

Select a video device to use with Video Image Express and set the format of that device.



Options:

Video Device: Lists all video input devices connected to the computer. Select the device to use.

NTSC/PAL: Select the video format for an analog input device. For digital devices such as USB microscopes or web cameras this setting is ignored.

Video Source: Set the video source parameters from a list of options. For an analog video source, such as a USBLink frame grabber, the choice of video source is S-Video or Composite Video. For a digital camera use the Set button to configure the source parameters.

Video Format: Select from a list of supported video formats. Each item in the list describes the width and height of the image (in pixels) and the color format by which the image is transferred from the video device to the computer. For example, "640 x 480, RGB24" indicates that the image is 640 pixels wide by 480 pixels tall and each pixel is transferred as a 24 bit value of RGB (red-green-blue).

Use the Set button to access additional format parameters.

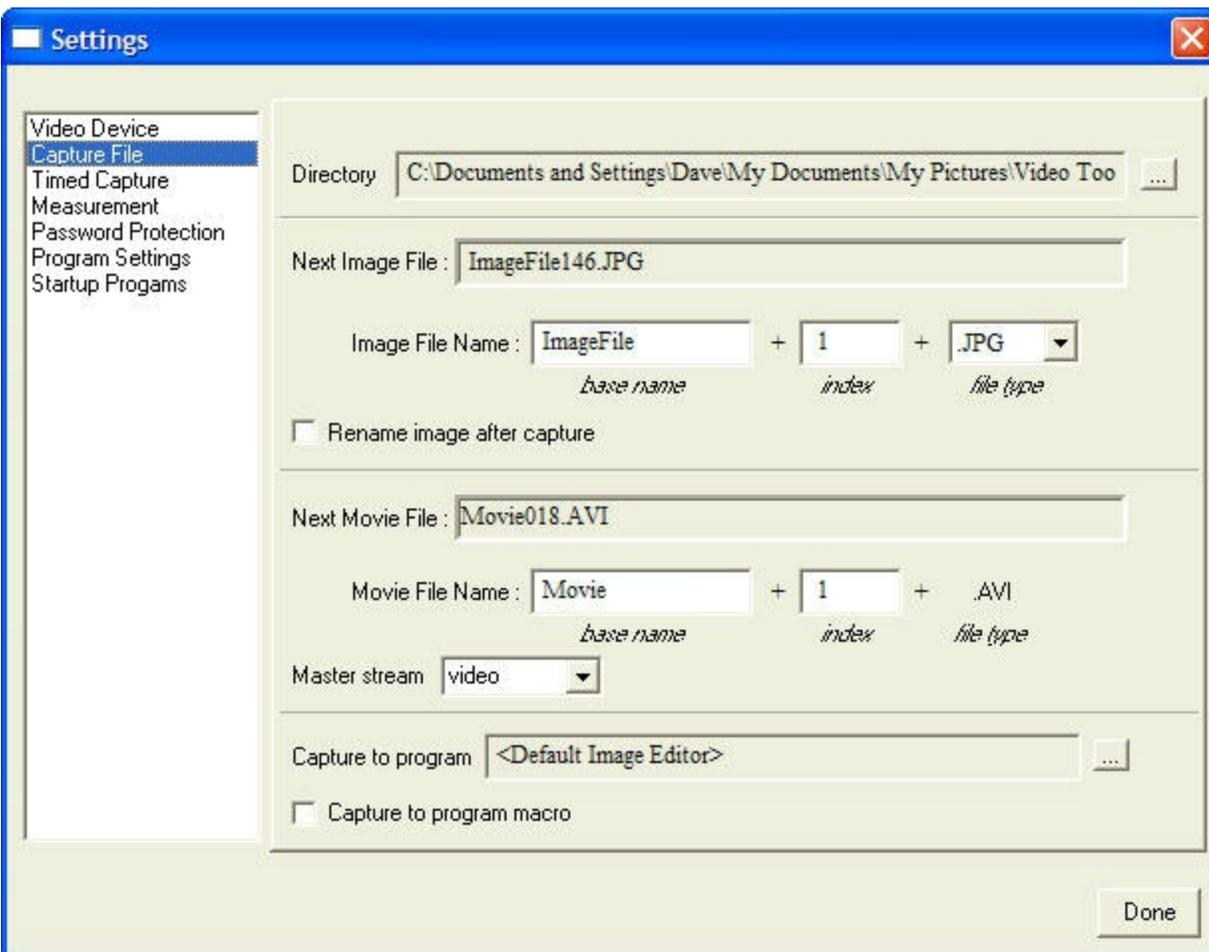
Set the number of frames per second to be sent from the video device to the computer. Consult the manual of the video device to see what frame rate is appropriate. Video cameras under the NTSC format operate at 30 frames/second. PAL cameras operate at 24 frames/second. For digital cameras (such as USB or FireWire cameras) check the manual.

Frame Rate:

Select the video compression/decompression filter which is used to create a movie file. Video Image Express creates movies in RGB24 format so make sure that any codec used supports RGB24 and is configured for it. Use the Set button to set the codec properties. Remember that any codec used to make a movie must also reside on any computer that will play back to movie.

Video Codec:

Settings Control: Capture File Settings



Options:

Directory:

Displays the directory into which image and movie files will be saved. To select a different directory use the selection button (...).

Image files are named by the following rules: Each image file has a base name + a three digit numerical value and ends with an extension which defines the type of file which will be saved. After an image file is created, a value of index is added to the three digit number to use for the name of the next image file.

Image File Name:

Set the base name, index and file type for automatic file naming.

If you check the "Rename image after capture" option a window will open each time you

capture an image. The window will allow you to rename the file and optionally to change the directory.

Movie files are named by the following rules: Each image file has a base name + a three digit numerical value and ends with an extension which defines the type of file which will be saved. After a movie file is created, a value of index is added to the three digit number to use for the name of the next movie file.

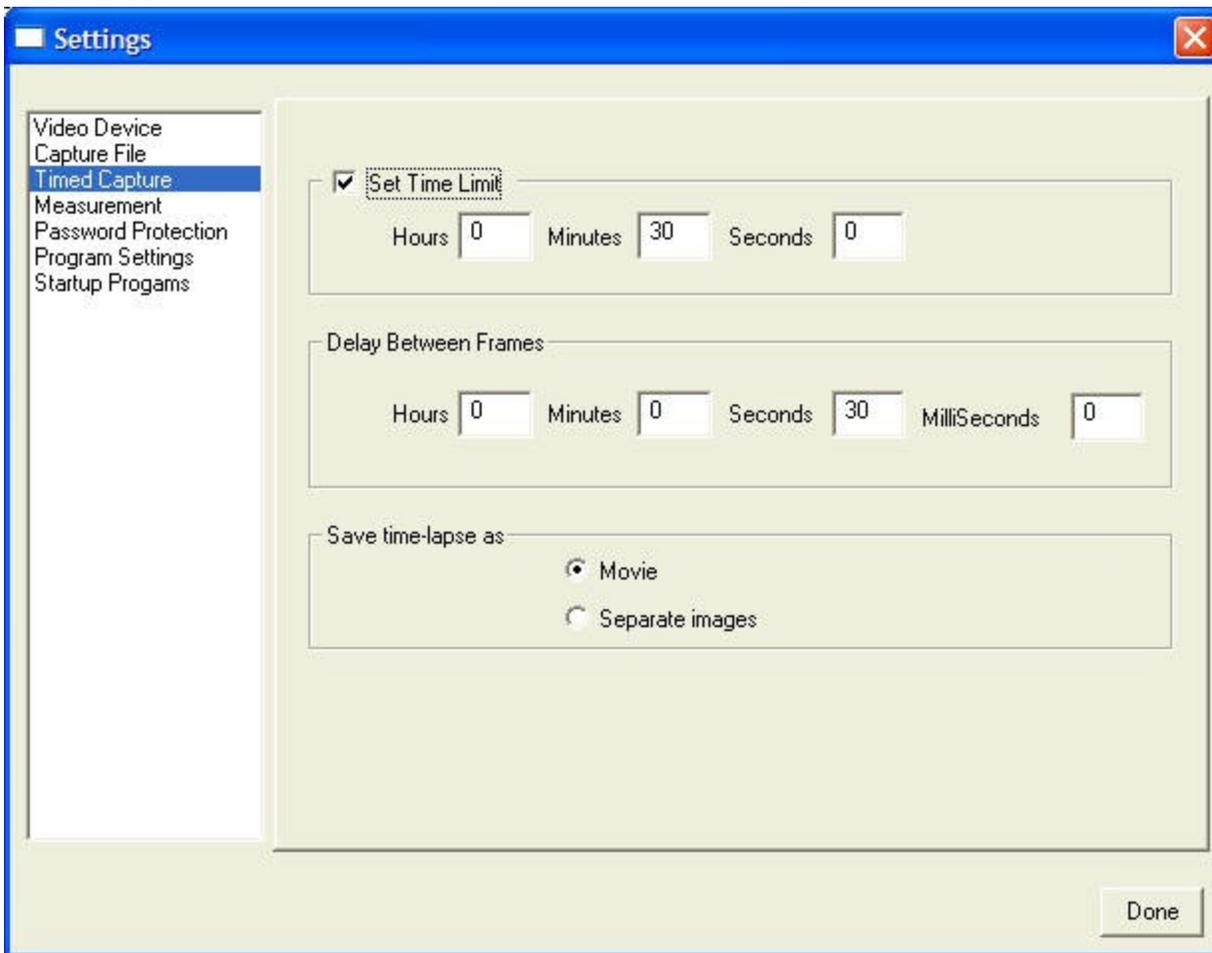
Movie File Name:

Set the base name, index and file type for automatic file naming.

Capture to program:

Displays the name of the program which is used when the Capture to Program (Capture Mode) is selected. If no program is selected, Video Image Express will use the default windows image editor. Use the selection button (...) to change the program. To return to using the default image editor, select the Video Image Express program.

Settings Control: Timed Capture Settings



Options:

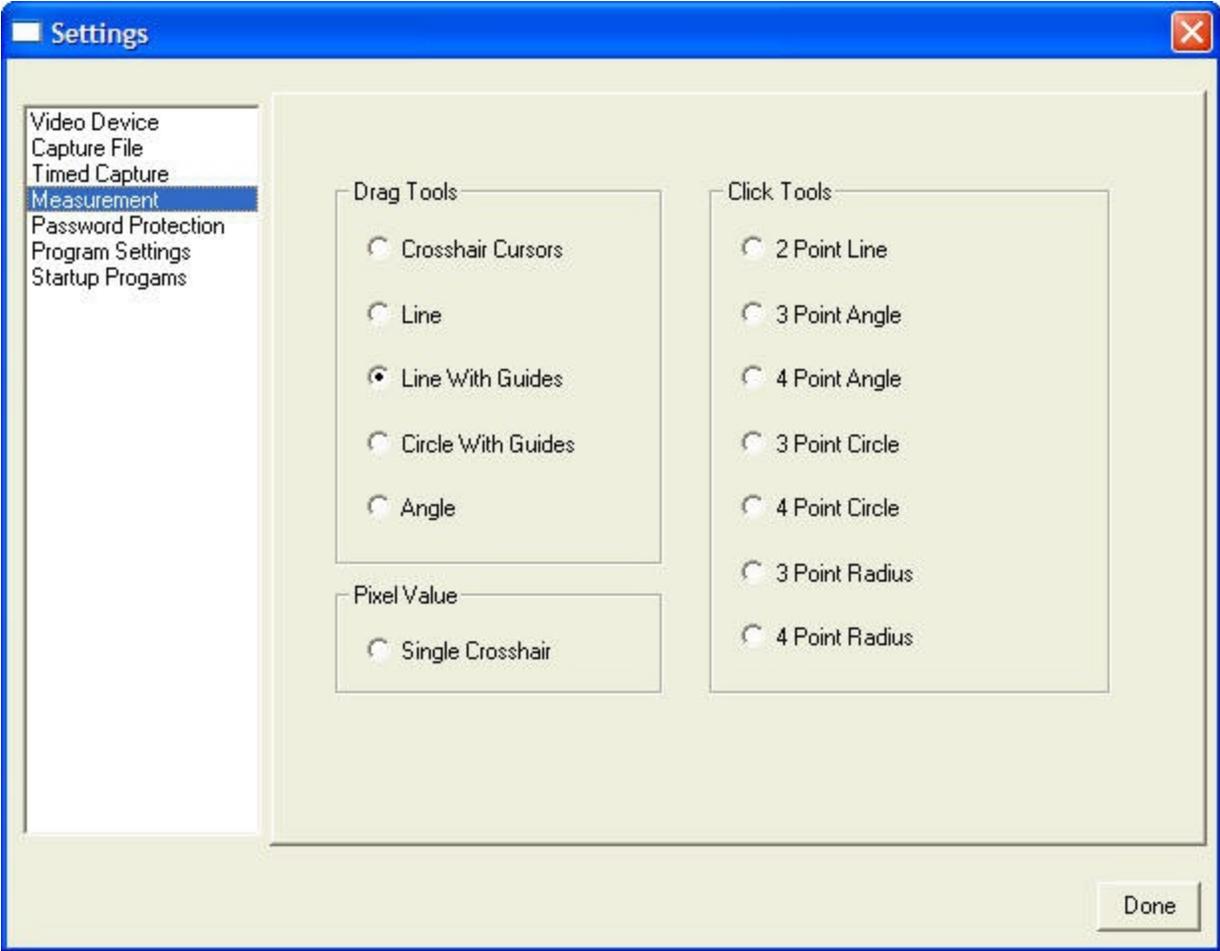
Set Time Limit: Check this item to limit movies files to the time defined within the box.

Time Limit: Set a time limit for any movie file created by Video Image Express. The time limit is enforced only if the Set Time Limit box is checked.

Delay Between Frames: Set a delay period for time lapse movies. After each frame is captured, the program will wait this length of time before the next frame is added to the movie.

Save time-lapse as Save your time-lapse video as a single movie file or as a folder full of separate image files.

Settings Control: Measurement Settings



Options:

The measurement control allows the user to make measurements directly over the live video image. This makes measurement fast and easy and eliminates the extra steps of saving and recalibrating that is required by many other image editing programs.

To enable on-screen measurement, press the Measure Button. A measurement tool will appear on the screen and a distance legend will appear in the upper left corner of the image. Different measurement tools are available from the [Settings window](#). The measurement tools are also available by right-clicking on the live image when the measurement control is enabled.

There are two different types of measurement tools:

<u>Drag Tools</u>	
Drag tools are active measurement tools. You can drag them across the screen to make measurements, or click and drag the mouse to position the tool. The following drag tools are available:	
Crosshair Cursors:	Displays a pair of cross hairs. Click and drag on top of each crosshair to move it, or click and drag in the area between the crosshair to move them both together.
Line:	Draws a line on the image. Click and hold the left button to start the line. Drag to draw the line. Release the mouse button to end the line. Once a line is drawn, click and drag on the end to resize the line or click and drag on the interior of the line to move it.

Line with Guides:	Draws a line with perpendicular guides on each end. Click and hold the left button to start the line. Drag to draw the line. Release the mouse button to end the line. Once a line is drawn, click and drag on the end to resize the line or click and drag on the interior of the line to move it.
Circle with Guides	Draws a circle with perpendicular guides and a line to mark the drag points. Click and hold the left button to start the circle. Drag to draw the circle. Release the mouse button to end the circle. Once a circle is drawn, click and drag on the end of the diameter line to resize the circle or click and drag on the interior of the circle to move it.
Angle	Draw a triangle segment which shows an angle. Click and hold the left button to draw the first line. Release the mouse and continue to drag to draw the second line. Click the mouse to end the triangle segment. Move the cursor over the figure to drag it, or move the cursor over an end or corner to reposition it.
Single Crosshair: (position & value)	Draws a single crosshair on the screen. Provides information about the position of the crosshair and the color information for the image pixel located directly beneath the crosshair.
<u>Click Tools</u>	
Click tools create permanently positioned measurements. Once a measurement is placed with a click tool, it cannot be dragged or repositioned. The following measurement click tools are available:	
Two-point line	Click the mouse at the location of each end point. Then click the mouse at the location for the label. A line will be drawn with the current pen color and line size.
Three-point angle	Click the mouse at the first end, inside corner, and second end point for the triangle segment. Finally click the mouse at the location for the label. The triangle segment will be drawn with the current pen color and size.
Four-point angle	Click the mouse twice to identify the first line. Click the mouse twice to identify the second line. Click the mouse a fifth time to position the label. The two lines will be drawn with a label indicating the angle between them.
Three-point circle	Click the mouse three times on the perimeter of a circle. Click the mouse a fourth time to locate the label. A circle will be drawn with a label to indicate the radius.
Four-point circle	Click the mouse four times on the perimeter of a circle. Click the mouse a fifth time to locate the label. A circle will be drawn with a label to indicate the radius.
Three-point arc	Click the mouse three times on the perimeter of the arc. Click the mouse a fourth time to locate the label. An arc will be drawn between all the points, with a label to indicate the radius.
Four-point arc	Click the mouse four times on the perimeter of the arc. Click the mouse a fifth time to locate the label. An arc will be drawn between all the points, with a label to indicate the radius.

Measurement Information:

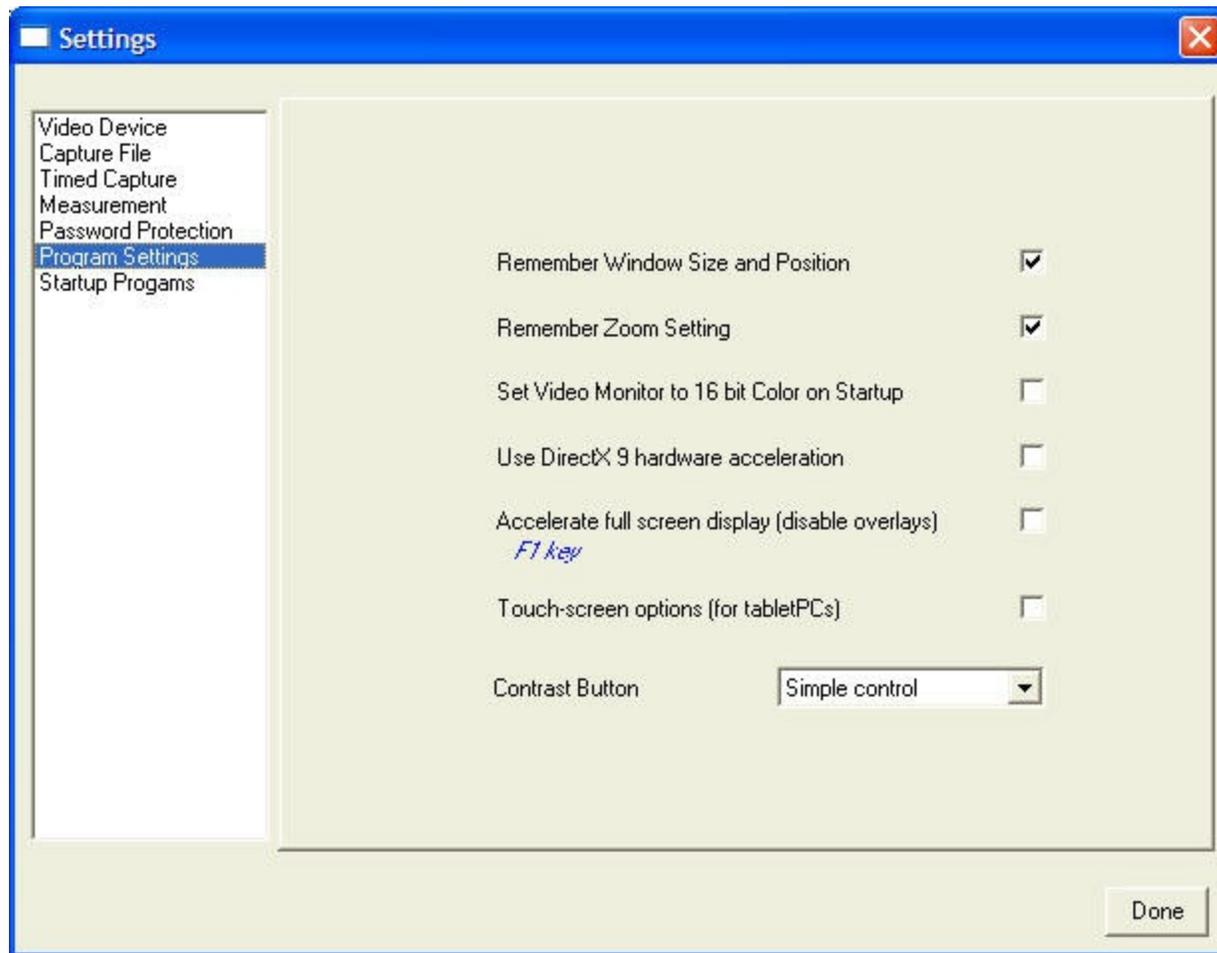
Measurement information is provided in the upper left corner of the image when a measurement tool is visible on the screen. The measurement information for each tool is as follows:

Crosshair Cursors:	Displays X (horizontal) distance, Y (vertical) distance and L (the diagonal length) between the crosshair cursors.
Line:	Displays X (horizontal) distance, Y (vertical) distance and L (the length) of the line drawn on the screen.
Line with Guides:	Displays X (horizontal) distance, Y (vertical) distance and L (the length) of the line drawn on the screen.
Circle with Guides	Displays the location of the center of the circle ([0,0] is the top-left corner of the image) and the circle's radius.
Angle	Displays the absolute angle between the two lines of the triangle segment.

Single Crosshair:
(position & value)

Displays the location of the crosshair ([0,0] is the top-left corner of the image) and the RGB color below the crosshair.

Settings Control: Program Settings



Options:

Remember Window Size And Position:

Remember the window size and position.

Remember Zoom Setting:

Remember the zoom setting when the program exits and restore the same zoom setting when the program restarts.

Set Video Monitor to 16 bit Color on Startup:

Many video programs operate better and faster when the computer monitor is set to 16 bits. Select this option to have Video Image Express automatically switch to 16 bit color at startup. If you have a problem with slow video, especially on slower computers, you should enable this option.

Use DirectX 9 Hardware acceleration

Uses DirectX 9 hardware if available. This will produce better video performance by using the graphics cards to handle video display

Accelerate full-screen display

Increases the speed of the full screen display (F1) by disabling the overlay when the video image is displayed full screen.

Touch-screen options (for tabletPC)

Provides touch-screen options when using a touch-screen tabletPC. Touch-screen options are:

Double-click the live image to switch to full-screen mode.

While in full-screen mode, double-click the screen to capture an image.

While in full-screen mode, right-click the screen to return to a normal window display.

Selects what control will be used when the Contrast Button is clicked on the main

window. The options are:

Simple Control -- Display a simple control to adjust the properties of the camera including brightness, contrast and saturation.

Device Driver -- Opens the device driver window with complete driver control over the camera (recommended).

Advanced Control -- Some cameras provide an advanced control window with advanced control functions.

Contrast Button

Video Controls



The video control buttons are used to view capture video images in a variety of formats. The format used to capture the image is set using the [Capture Mode Control](#).

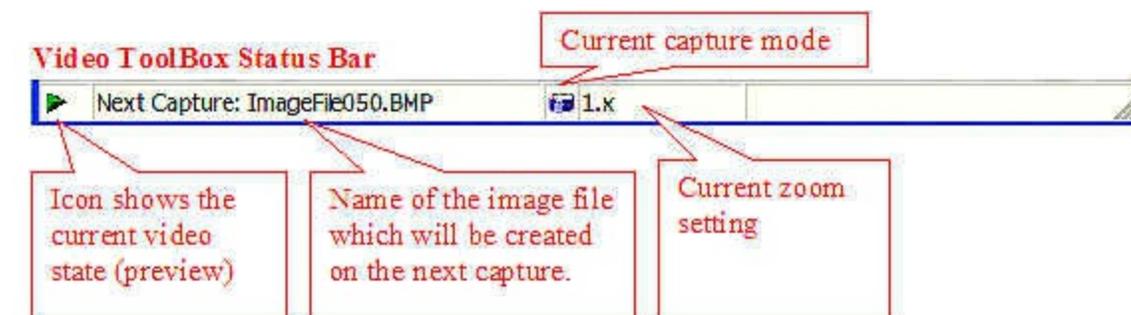
The video control buttons operate as follows:

 **Stop:** Stop the current display or capture function. If the display is currently in preview mode, preview is disabled and the current image is frozen on the screen. If the display is currently in capture mode, then the capture is terminated, the capture file is closed and the last visible image is frozen on the screen.

 **Preview:** Display the live video image on the screen.

 **Capture:** Start the capture of the image. The image will be captured in the format set by the capture mode controls (still image, movie, time lapse movie or still image opened in an image editor program).

Information about the current video control settings can be found on the status bar at the bottom of the Video Image Express window.

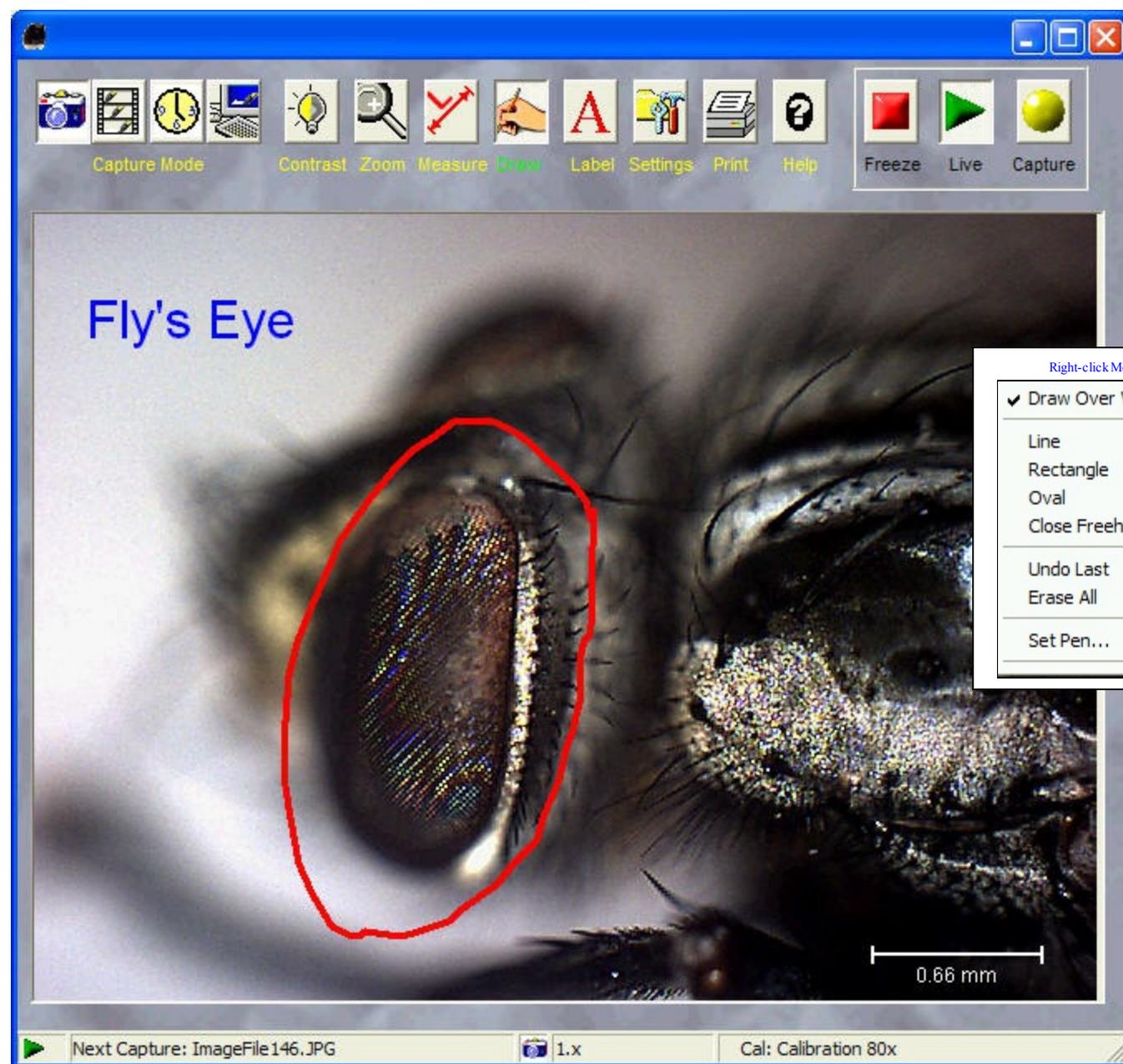


Draw On the Screen

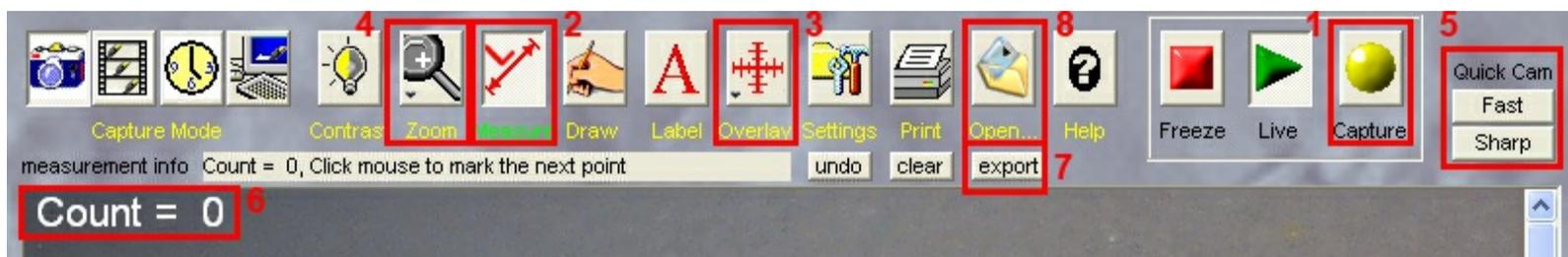
With Video Image Express you can directly on the live video image. Press the Draw button to enable the drawing mode. Now hold down the left mouse button and begin drawing. Whatever you draw is part of any image or movie you create -- the Capture and Copy buttons will record your freehand annotations.

Use the right mouse button to change the pen or erase the screen and start again.

[Tell me more about the Draw Over Video menu functions.](#)



What's New In Video Image Express Version 2.06



The New Video Image Express ToolBar

Major New Features in Video Image Express

1. Capture images with calibration information. Images saved in JPG or TIFF format have the option to include the calibration information directly in the file. When you re-open the file (also a new feature) the calibration is loaded back into Video Image Express. This allows you to make additional measurements or to re-check previously measurements.

2. New measurement tools including a new "Perpendicular to line" drag tool and point marker click tools. Now you can mark each clicked point and relevant geometry marks such as a circle's center. New advanced relational measurement tools including circle center-to-center and point perpendicular to line.

3. Graphical overlays and a new overlay menu. The calibration and overlay menu has been moved to the toolbar where it is easier to find. The reticle, overlay and cal bar menus have been updated to make them easier to use. A new option has been added to display line drawings or transparent overlays on the live image. See below for more information on how to create and display an overlay.

4. Zoom 1/2x. Makes it easier to display the image from high resolution multi-megapixel cameras.

5. Optional Quick Cam controls to quickly switch your camera from a **fast** update setting (high frame rate) to a **sharp** image setting (high resolution). Especially designed for high megapixel cameras, Quick Cam lets you store a **fast** setting to scan at high speed; then switch to a **sharp** setting to capture a high resolution photo. Settings can be set in the Settings window.

6. Counting objects. Set the measurement tool to point <no label> and Video Image Express will keep track of the number of mouse clicks.

7. Export measurements to EXCEL®, the clipboard, a graphics file or an importable data file.

8. Open saved images directly into Video Image Express. Now you can open any standard image file into Video Image Express to use all the annotation and measurement tools available for live images. If you re-open an image saved with Video Image Express (in JPG or TIFF format) then the calibration will be re-loaded into the software.

Additional Features

9. Hold down the SHIFT key to move any label or overlay -- even in DRAW or MEASURE mode.

10. Hold down the SHIFT key and double-click the mouse to move the overlay to its original position

11. Hold down the SHIFT key and double-click the CAPTURE button to capture only the portion of the image that can be seen in the window on the screen.

New Measurement Tools

To access all the new measurement tools, press the MEASUREMENT button and then right-click the mouse within the live image.

New Drag Tools

Perpendicular to Line -- Click and hold the mouse to drag a line. Release the mouse at the end of the line, and then drag the mouse to draw the perpendicular line. Click the mouse again to mark the end of the perpendicular line.

New Click Tools

1 point (x,y) -- Click to mark a point, and click again to locate the label.

The label will display the x,y coordinates of the point.

1 point <no label> -- Click to mark a point. If no other measurement styles have been used, the program will count the number of clicks.

Relational Measurement Tools

Select closest point -- Lets you select a point that is already displayed including any end point, marker or circle center. Retains high resolution sub-pixel accuracy of previous measurements.

Center Reference Coordinates -- Center the reference coordinate on the last selected (or created) point. If you measure a circle and select "Center Reference Coordinates" then the circle's center will be displayed as (0,0).

Auto-Calculate Measurement Tools

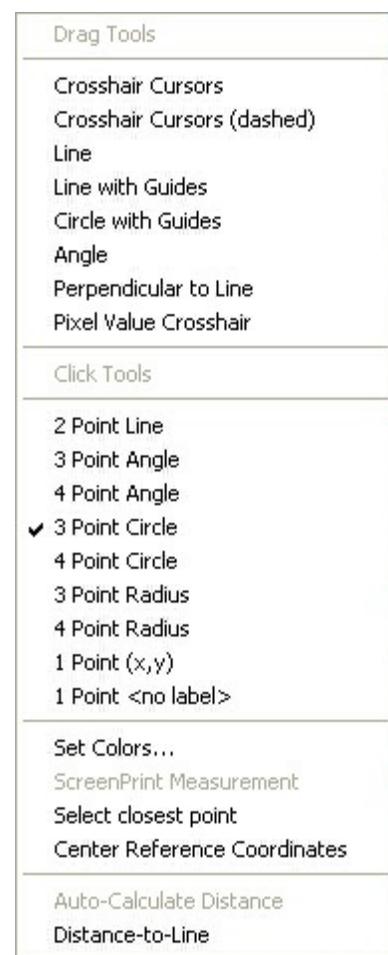
Distance-to-Line -- Automatically measure the distance between the last created line and the last created point (including a circle center).

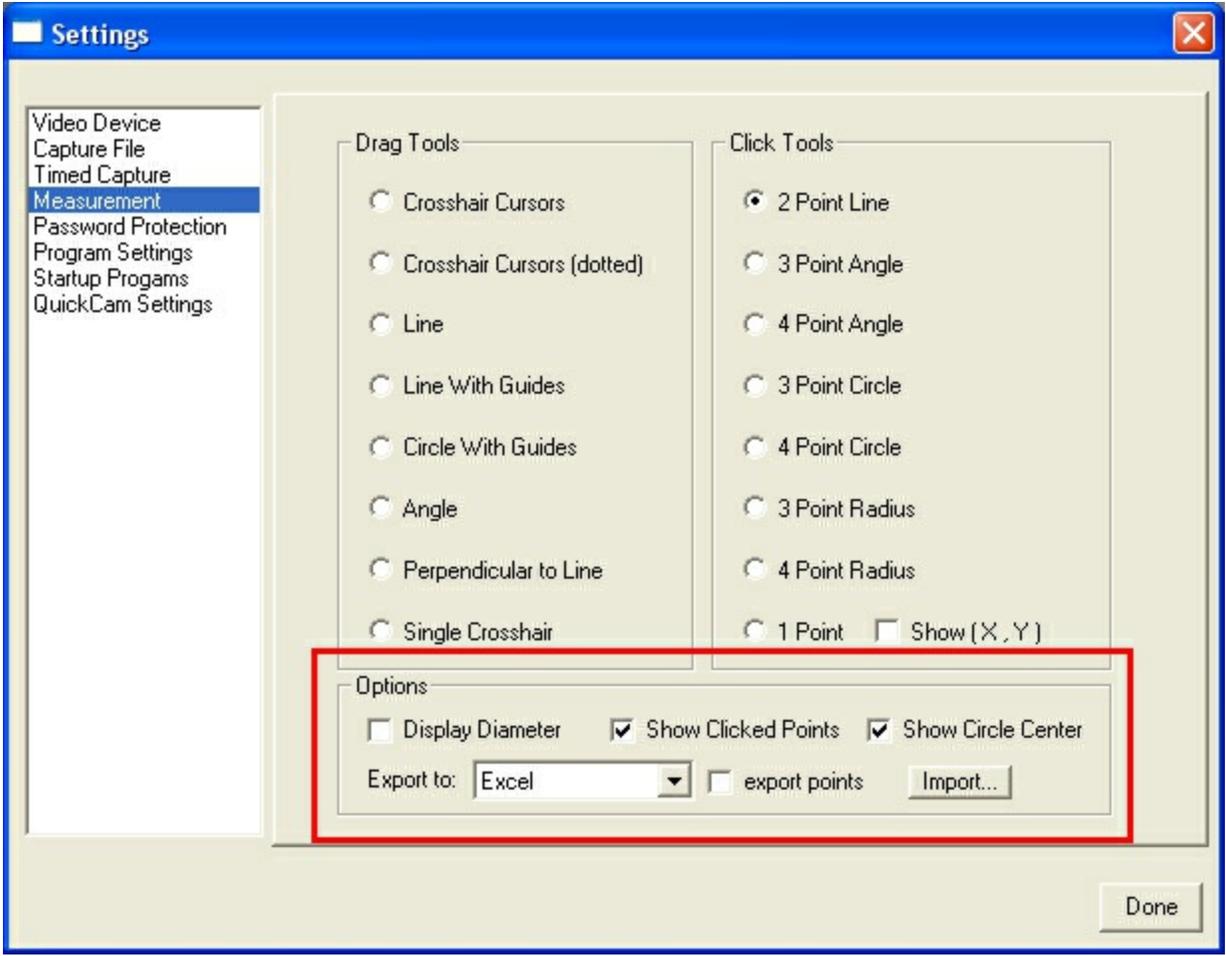
Center-to-Center -- Automatically measure the distance between the centers of the last two created circles.

Midpoint of Line -- Automatically locate the midpoint of the last created line.

Measurement Options

New measurement options are found in the Settings window under the Measurement category.





Display Diameter -- display circle information in diameter. Otherwise the information will be displayed in radius.

Show Clicked Points -- display a marker on the screen anywhere a point is clicked with the mouse.

Show Circle Center -- display a marker at the center location of a circle or radius.

Export to: -- export the on-screen measurements to EXCEL, clipboard, JPG graphics file or a data file

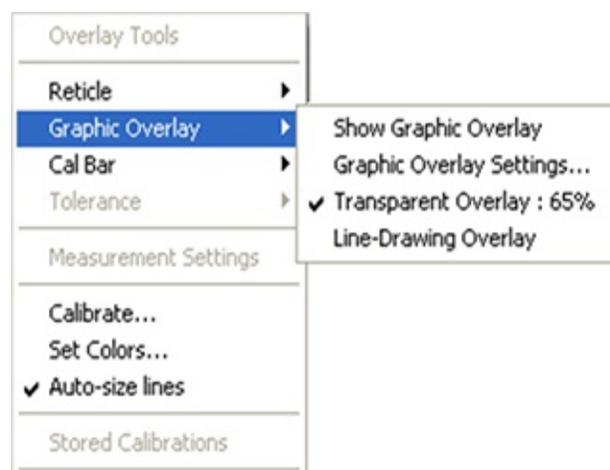
Export points -- export all clicked points to the EXCEL file or clipboard. Otherwise, only the measured geometry shapes (lines, circles, angles) are exported.

Import... -- Import a set of measurements from a previously exported data file.

Line Drawings and Transparent Overlays

Video Image Express can display a line drawing or transparent image as an overlay on the live video image.

The overlay options are available on the new Overlay menu. The menu provides options to display a reticle, calibration bar or graphic (image) overlay.



The Graphic Overlay submenu (see right) has the following selections available:

Show/Hide Graphic Overlay – Show (or hide) the overlay on the live image.

Graphic Overlay Settings... -- Opens a dialog window with options to select the image to display as an overlay. The dialog can be used to configure the scale of the overlay (1x or scaled to fit the window) as well as the transparency and display format of the overlay (transparent graphic or line drawing). After changing any overlay settings, you must Reload the overlay for those changes to take effect.

Transparent Overlay : xx% -- Displays the overlay as a transparency. The transparency value shows the translucency of the overlay. 100% transparency means the overlay cannot be seen. 0% transparency means the overlay is opaque and completely blocks the live image.

Line-Drawing Overlay – Displays the overlay as a line drawing. The background color (white) is not shown, so that the graphic is displayed directly over the live image.

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Adjusting the Overlay Image

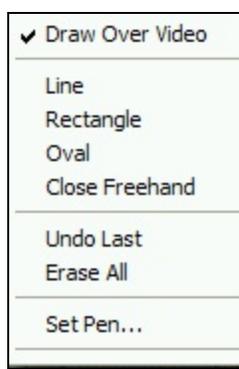
It is possible to re-position the overlay as well as change the transparency directly with the mouse. To reposition the overlay, hold the SHIFT key down, click-and-hold the left mouse button with the mouse on the overlay, then and drag. To reset the overlay to its original position, hold the SHIFT key and double-click on the overlay.

To dynamically change the transparency of the overlay, hold down the ALT key, click-and-hold the left mouse button with the mouse on the overlay; then drag the mouse left or right.

Line-Drawing Overlay Files

Any image file can be imported into Video Image Express. When set to line drawing, the overlay will be displayed with the color white (RGB = 255,255,255) fully transparent. This allows you to create a drawing and to display only the drawing lines and objects over the live image. The white portion of the overlay will not be displayed. Video Image Express can open most standard image formats (JPG, BMP, TIF, PNG) to be displayed as an overlay.

Right-click Menu with Draw Mode Enabled



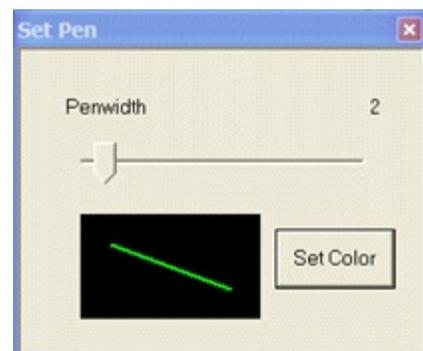
If the user right-clicks the mouse button over the video image while in Draw mode a menu will appear. The right-click menu options are:

Draw Over Video: Select this option (check mark indicated selected) to enable drawing on the live video image. Any previous drawing will become visible when this menu option is selected. Select this option again (which will hide the check mark) to disable drawing and to hide the current drawing.

Undo Last: Undo the last drawn line. A line starts when the left mouse button is pressed down and ends when the left mouse button is release.

Erase All: Erase the entire drawing screen.

Set Pen...: Set the color and width of the pen which is used to draw over the live video. This menu option brings up a separate window which provides control over the drawing pen. The *Penwidth* slider adjusts the width of the pen. Select the *Set Color* button to change the pen color.



Select the "Set Color" button open the color selection window.



How To Send E-mail from Video Image Express

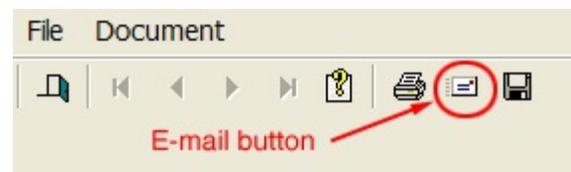
Video Image Express can send e-mails with an image file attached. This makes it easy to share images with other users.

The e-mail feature of Video Image Express is located within the Print window. The following procedure will send the current screen image to any e-mail recipient:

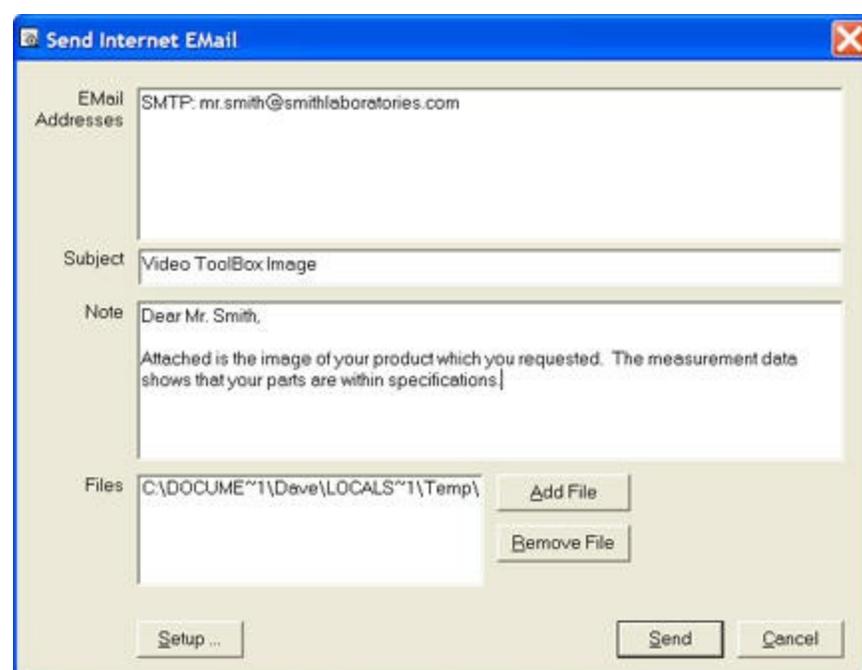
1) Make sure your object is correctly positioned under the microscope or camera and you are satisfied with the image on the screen. You can press the Freeze button to lock the image onto the screen.



2) Press the Print button to open the the print window. The print window will show a preview of the image as it will be placed on the page. The print window also has a series of button along the top left of the window (as shown below).



3) Press the E-mail button to open the e-mail window. The first time you open the e-mail window you will need to configure the program for your e-mail system. See the "[configure e-mail](#)" section for more information.



4) Fill in the information in the Send Internet E-mail window (see below). You will need to fill in the E-mail Addresses of any recipients with multiple names separated by a semicolon. If the recipient is not in your local group then you need to preface their e-mail address with the text "SMTP:" (without the quotation marks).

Optionally fill in the Subject and Note fields. Do not modify the Files field -- the Video Image Express image has already been inserted.

5) Press the Send button to send the e-mail or press the Cancel button to return to Video Image Express without sending the e-mail message.

Configuring the E-mail Options

The e-mail tool must be properly configured to work correctly. The first time the e-mail window is opened a special setup window is displayed. To open that window at a later time press the Setup... button in the Send E-mail window.

To properly configure the e-mail tool, you will need to know some information about your network. Ask a network administrator to assist

you as (s)he should be able to provide this information. Fill in the following information:

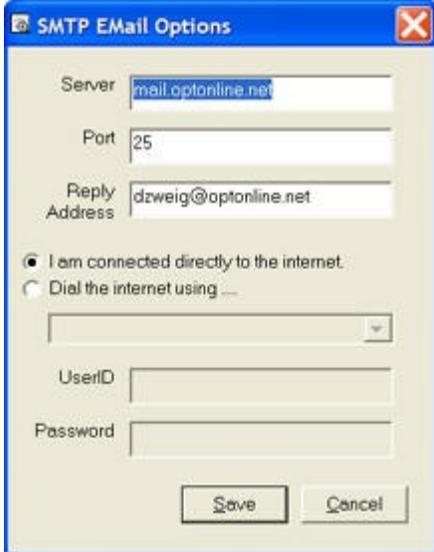
Server: The address of the mail server. Ask your network administrator if you do not know this.

Port: Default port is 25. Usually, there is no need to change this.

Reply Address: Your e-mail address which will be listed as the reply address.

Connection: Use "connected directly to the internet" unless you connect through a dialup system. Otherwise select the "Dial the internet" option to choose the Windows RAS dialer. Select the dialup settings and set the UserID and Password required to make a connection.

If Video Image Express dials for a connection, then Video Image Express will also hang up. If the connection has already been made then Video ToolBox will leave the connection intact.



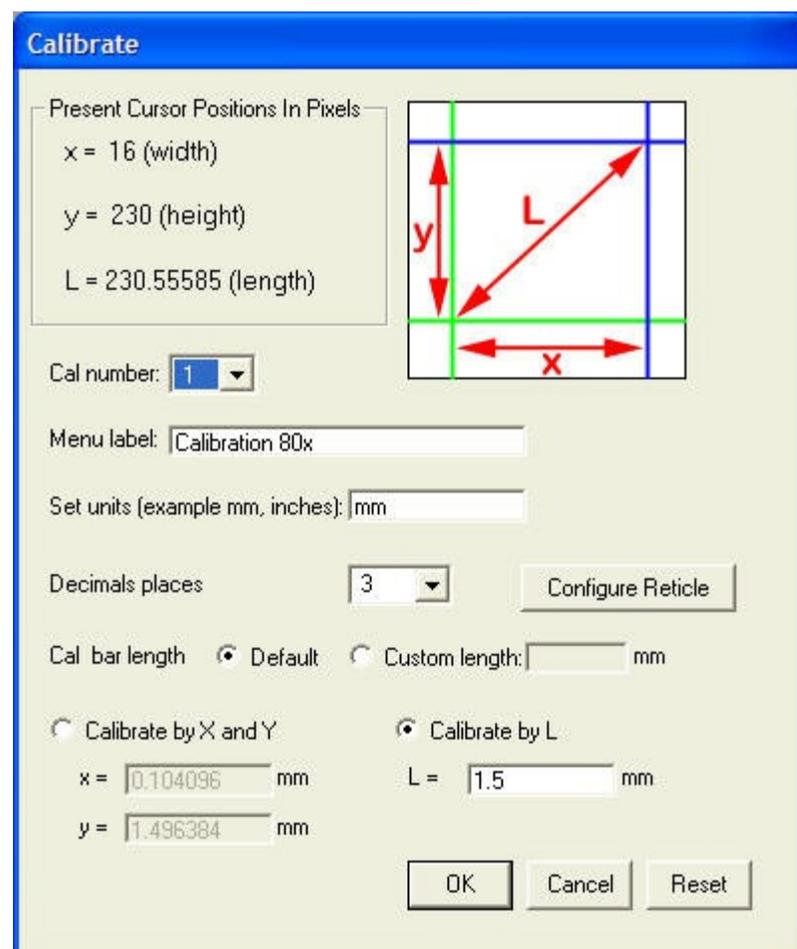
Reading E-mailed Files

Video Image Express uses a special format when placing an image on a page for printing or e-mailing. The resulting document is in a special format and requires the ddoc.exe program to read it. The installer for this program is found in the distributable folder (in the same folder as Video Image Express) and can be freely distributed to anyone who needs to view your e-mails. The full installer is available on the internet at <http://dickinson.basicguru.com/files/ddocrun.exe>.

Why does Video Image Express require a separate program to read the e-mail?

Until recently it was possible to create a portable viewer document which could display and print itself and which could be shared among users. This changed when internet viruses became common. The most popular e-mail programs cannot distinguish between a self-viewing document and a virus so they prevent both from being e-mailed. To overcome this problem Video Image Express no longer includes the small viewing program in each e-mail. Instead it can be downloaded and installed from <http://dickinson.basicguru.com/files/ddocrun.exe> or you can distribute the ddocrun.exe file included with Video Image Express.

How To Calibrate The Measurement Tools



An important feature of Video Image Express is the measurement tool. The measurement tool allows the user to make measurements directly on the live image using a selectable and calibrated measurement tool. The measurement tool is selected in the [Settings window](#).

To make precise measurements, it is important to correctly calibrate the software. Remember that the software does not know what kind of camera or microscope is being used. If, for example, a microscope is being used with Video Image Express, then the software will need to be calibrated for every magnification which will be used. Video Image Express allows up to 8 separate calibrations; each of which can be labeled with an easy-to-remember name.

The following procedure can be used for calibration.

1) Adjust the magnification of the microscope or camera to the way it will be used. Place an object under the microscope or camera and verify that the magnification is correct.

2) Locate an object of known size. This could be a drilled circular hole, a precision ball bearing or a reticle etched on a glass plate. A circular object, if available works best. We will refer to this object as the "reference object" since all measurements will be referenced from the size of our known object. The reference object must be entirely visible when viewed under our microscope or camera at its current magnification. If the entire object is not visible then a

different object must be used.

3) Place this reference object under the microscope or camera and adjust the focus until the edges of the reference object are in focus. Do not do anything that might change the magnification.

4) Enable the Video Image Express measurement mode by pressing the Measure button. This will place a measurement tool on the screen. Select one of the distance measurement tools from the Measurement section of the Settings Window (press the Settings button to open this window).

5) Position the measurement tool so that the reference object fits within the ends of the tool. It is important that the measurement tool be precisely placed over the ends of the object to create an accurate calibration.

6) Move the mouse over the calibration area on the status bar at the bottom of the window.



Click the mouse button on the calibration label to popup the calibration window. From the menu select **Calibrate...** to open the calibrate window (see the top of this page).

7) Select a cal number to place this calibration information into one of the 8 possible positions.

8) Type a name for the calibration into the menu label edit box. This is the name that will appear on the calibration menu and in the calibration area of the status bar at the bottom of the main window.

9) Set the units of distance. Common units are inches, mm, microns or cm. Video Image Express allows you to use any unit you would like.

10) If circles appear round on the screen, select the option *Calibrate by L*. This means the scaling in the vertical and horizontal directions are equal and a single scale factor can be used. Next to the "L = " label enter the known size of the object.

11) If circles appear elongated on the screen, select the option *Calibrate by X and Y*. This means that the scaling in the vertical and horizontal directions are not equal and there is a distortion in the image. A separate scale factor is required for each direction. Next to the label "x = " enter the horizontal size of the known object and next to the label "y = " enter the vertical size of the known object (these two sizes can be equal).

12) Press the OK button. The software is now calibrated for the current magnification. Check the measurement information at the upper left corner of the screen. The information should show the correct size for the known reference object.

You will need to repeat this procedure for each magnification of your microscope or camera.

