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http://www.ken-a-vision.com

APPLIED VISION
Software Reference Guide

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Welcome!
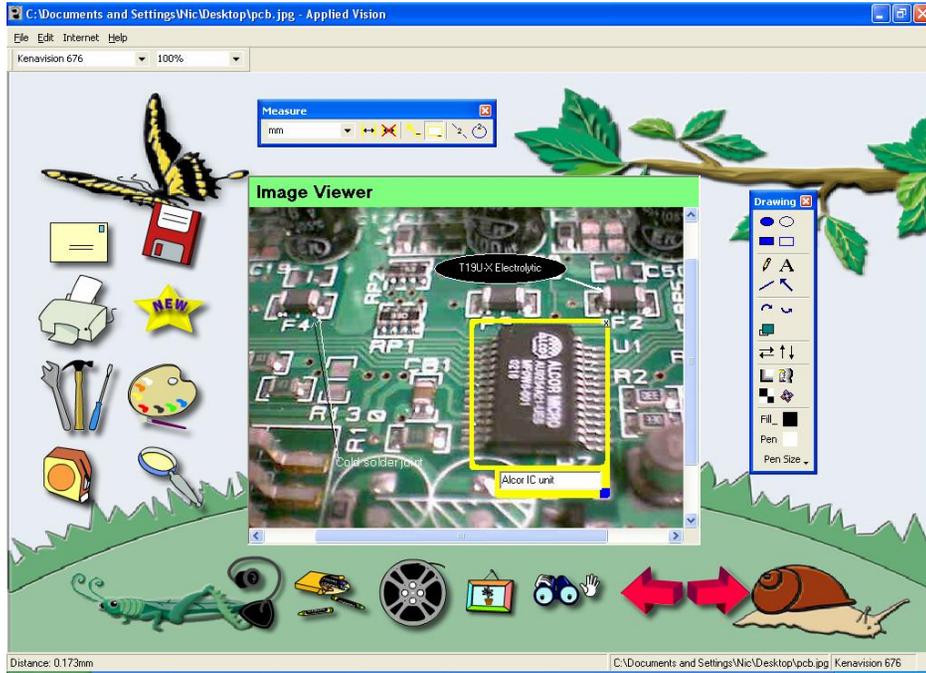
Applied Vision Software has animated icons designed to make capturing images easy and fun, as well as robust and powerful new features to allow you to make the most of your Ken-A-Vision digital imaging product. The intention of this guide is to provide a quick reference to the key functions of Applied Vision. Further information on specific functions can also be found in the online help files, accessed through the Help menu of Applied Vision.

Sample Applications

Chemistry:
- Titration
- Electrophoresis
- Chromatography

Geology:
- Time lapse of crystal formation
- Record changes due to polarized light

Biology:
- Time lapse of seed germination
- Mitosis
- Animal behavior studies

Astronomy:
- Sun movements
- Eclipses

Ken-A-Vision® Products Compatible with Applied Vision Include:

Video Flex 7600
Interfaces with your computer and TV monitor simultaneously for maximum connectivity.

7890U Vision Viewer
USB output with 640 * 480 resolution, for high-quality digital imaging with simplicity and reliability.

PupilCam
Affordable solution can provide a standard microscope with digital imaging capabilities via USB.

Digital Video Microscopes
Ken-A-Vision's range of digital video microscopes provide an easy interface to capture and share what you are seeing through the eyepiece.

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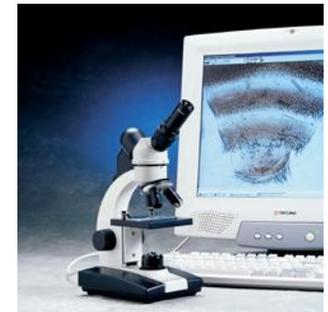
Internet Streaming
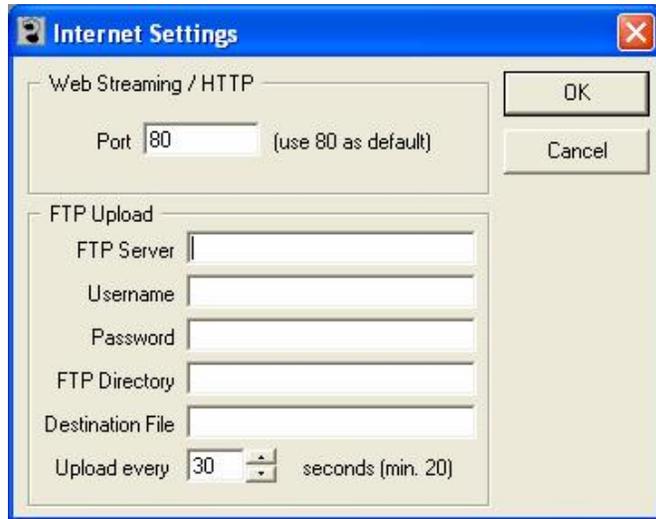
To set up Internet Streaming, you will need to open the Internet Settings window shown above by selecting Configure under the Internet menu of Applied Vision.

- For FTP uploading, you will need to supply the appropriate FTP server information here, as provided by your network administrator. Once it is properly configured, you may start the regular upload of images to the specified FTP server by clicking FTP Uploader on the Internet menu. Your FTP account must have Read/Write privileges in order to upload properly.

- Internet Streaming is a feature useful for sharing video through a local area network or the Internet. Start the video stream while in Live Video Mode, by clicking on the 'streaming' icon (computer monitor, left column of icons). In the pop-up window an IP address (http://......) will appear that you will give to the computer users to whom you wish to send the video stream. Instruct them to open Internet Explorer, then type in the IP address you have given them, and the video stream should appear on their screen. (A possible application of the latter would occur if there were 5 cameras operating in a classroom, each with their own networked computer. From a central computer the teacher could access the live picture on any camera station, or direct students to browse to that IP address to collectively view the camera output.)

Installing Applied Vision 2.0

1. Insert the Applied Vision CD into the CD-ROM drive.

2. If the installer does not auto load, do the following:
   - Click "Start."
   - Select "Run."
   - Type "D:\install.exe", where "D" is your CD-ROM drive letter.

3. At the Installer screen, make the appropriate choices.
   - If the DirectX box is not grayed-out, make certain it is selected; DirectX 8.1 is required to ensure functionality of the program. If the DirectX box is grayed-out, the program has detected that your version of DirectX is sufficiently up-to-date.
   - Select "Applied Vision."
   - Select appropriate camera driver to be installed for the product.

4. Continue with the installation, following all prompts until each installation has completed. You may be prompted to restart your computer at certain points in the installation.

5. You can finish the driver loading process by plugging the camera into the computer's USB port; make certain the Applied Vision CD is still in the CD-ROM drive.

6. The drivers should self-load.

7. Once the Applied Vision program AND the appropriate camera drivers have been fully installed, with the camera plugged in to the computer, you are ready to start the program by clicking on the new icon placed on your Desktop during installation.

Software Requirements:
- Pentium II 433 MHz
- Microsoft Internet Explorer 5.0
- 128mb of RAM
- Windows 98SE, 2000, XP
- 8mb Video (24 bit color)
- Microsoft Word 97 or later (for Export functionality)

Live Video Side Panel Tools

Capture Image — Capture a single image and open it in the Image Editor.

Capture Movie — Click this icon to start and stop capturing of video.

Timed Capturing
- Capture a timed sequence of still images.
- Make a time-lapse movie. *See page 6.*

Email Image — Capture a still image and open your Windows-default mail client to send it to a friend or colleague.

Internet Streaming — Share a live video stream online with your IP address. *See page 7.*

Video Tools
- Video Format/Driver Controls
- Resizable Label Box
- Labeled Arrow
- Full Screen Mode

Bottom Panel Buttons

Live Video Mode

Movie Player Mode

Media File Search

Image Viewer Mode *(for editing images)*

Image Browser Mode
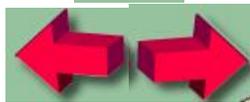
Undo/Redo *(for Image Editing Tools, to 10 steps)*

How to Calibrate Measurement

Measure
Pixels

1. Focus your camera or microscope on a measured rule that has the units in which you want calibration for measurements (such as a stage micrometer or ruler).

2. Take a still picture of the measured rule by clicking on the camera icon in Live Video Mode.

3. Open the Measure menu bar by clicking on the tape measure icon.

4. Click on the icon, and using the mouse, measure the precise length of the unit you wish to calibrate on the measured rule.

5. Click on the icon.

6. For the Standard Name, type in the full name of the units you are measuring (ie. "Centimeters"). For Unit Indicator, type in the abbreviation for the unit (ie. "cm"). Finally, if you measured more than one of these units in your calibration (for example, measuring a 10 cm line to calibrate centimeters), type in the number of units measured, and click OK. The unit is now calibrated.

Notes:

- Calibrations remain stored in memory each time you restart Applied Vision.

- On microscopes, you must calibrate units for each objective lens used.

- Likewise, for other uses, you must recalibrate any time the distance from the camera to the measured object changes.

How to Capture a Time Lapse
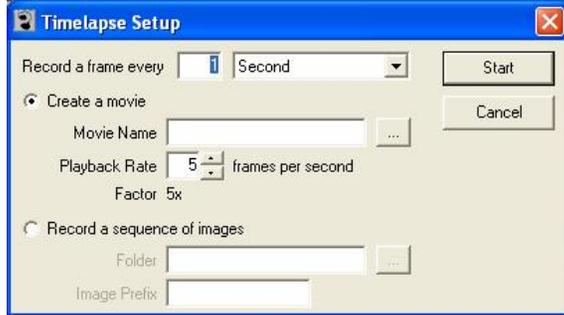
1. Click on the Stopwatch icon in the Live Video Mode of Applied Vision to open the Time Lapse window.

2. Next, set the frame capture rate in the first box. Set the amount of time the computer waits between each frame capture, first specifying a number (1-?) and then a unit of time from the following list:

   - 1/10 of second
   - Second
   - Minute
   - Hour

   Note you cannot set the frame capture rate to exceed the actual frame rate of the camera.

3. The default is set for "Create a movie". This will produce an AVI movie file. If you would like to create a series of images instead, select "Record a sequence of images".

4. If you are creating a movie, title your movie file in the "Movie Name" box. Click on the "..." button next to the "Movie Name" box to browse to a location to save your files under. Set the movie playback rate as desired. The "Factor" below is a function showing how much the playback will be accelerated, based on the frame capture rate and the movie playback rate.

   If you are recording a sequence of images, title the folder into which the files will be saved in the "Folder" box. The "..." button to the right will allow you to browse to a location to save the files. Fill in the "Image Prefix" box with a name that will identify your files. Incremented numbers will be added to the prefix to create the filenames of the ordered images.

5. Finally, click "Start" and the time lapse begins. Applied Vision will continue to capture images for the time lapse until either you click on the stopwatch icon again to stop the time lapse capture, or your computer reaches 80% of its memory capacity, after which the software will stop.

Image Viewer Side Panel Tools

	Email Image	Open your Windows-default mail client to send image to a friend or colleague.
	Save Image	Save the open image to your hard disk.
	Print Image	Send the image to your printer for a hard copy.
	New Image	Create a new, blank image.
	Amalgamation	Using various algorithms, layer and blend a saved image over the current image. *See page 5.*
	Image Editing Toolbar	Open a fully-featured image editing toolbar that allows you to edit, highlight, rotate, and brighten your captured images. *See page 4.*
	Measuring Tools	Create calibrated measurement standards that will allow you to take precise measurements on the images you capture. *See page 7.*
	Magnifier	Magnify parts of the image for better viewing. *(Customizable from the Options panel under the Edit menu; see page 4.)*

See also the "Clean Screen" function under the Tools menu when in Image Viewer mode. When activated, this will expand the captured image to the full size of the Applied Vision window, to allow for more detailed and immersive image editing. The Drawing tools are floated over the image in this mode. If Measuring tools are required in this mode, they can be accessed through the Tools menu.

Image Editing Toolbar

Solid Ellipse →	← Ellipse Outline
Solid Rectangle →	← Rectangle Outline
Drawing Pen →	← Text
Line →	← Arrow
Rotate Clockwise →	← Rotate Counterclockwise
Resize Image →	
Horizontal Flip →	← Vertical Flip
Brightness →	← Contrast
Negative Image →	← Color Intensity
	← Fill Color
Pen Color →	
	← Pen Size

Magnifier Options

The **Options** window under the Edit menu allows you to specify a default folder for saving your images, and customize the appearance and functionality of the Magnifier tool.

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Amalgamation

The Amalgamation tool lets you combine two images in a variety of ways. You can enter the Amalgamation window (pictured below) by clicking on the Amalgamation icon in the Image Editor.
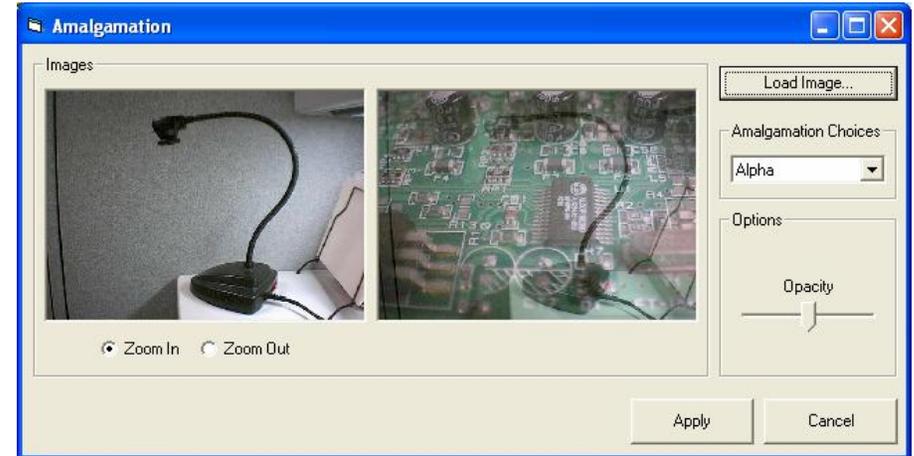
The current open image is loaded into the left pane. To combine another image with the image on the left, click the "Load Image" button on the top right corner of the dialog box.

Once another image is loaded, there are several different types of amalgamation to choose from:

- **Alpha** - Combines image data from two bitmaps, using the Opacity slider to set the blend ratio between the images.

- **Combine** - Takes the two images and combines them through mathematical pixel combination. The algorithm choices are And, Or, XOR, Add, Subtract, Multiply, Divide, Average, Min, Max. Review the choices to find one that highlights the difference in the two images you're looking for.

- **Picturize** - Takes the loaded image and fills the original image with small copies of the loaded image. You can change the size of the loaded image and the brightness of the combined images.

- **Underlay** - Combines two bitmaps so that one appears to be an underlying texture for the other, using either a Stretch or Tile algorithm.

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