

# VidScope-HD

## Video Waveform, Vectorscope and Audio Monitoring Capturing Application Software For PCs with Windows™ . USER REFERENCE & INSTALLATION MANUAL

for Vidscope-HD version 3.

This manual describes the installation and operation of Vidscope-HD, a software package that provides Television Monitoring and Measurement tools for Windows™ based PCs users. It is capable real-time waveform, vectorscope and picture monitoring on a suitable PC's monitor screen.

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## INTRODUCTION

**We hope you take the time to read this manual. It should help you to appreciate the facilities and features of Vidscope-HD and hopefully, keep you out of trouble.**

Vidscope-HD is an integrated suite of Windows programs for television signal monitoring and measurements. Operating on a Windows desktop, the Waveform monitor, Vectorscope and associated Audio displays with the Picture can all be displayed on the PC's monitor screen. The real time Hamlet VidScope displays look like those on conventional waveform monitors with variable intensity, persistence and graticule brightness just like a conventional CRT. The user can scale all displays as floating windows from full screen to thumbnail sizes.

Waveforms can be portrayed in field, frame and 1 H display modes. In Line select mode all frame's lines are overlaid in real time with the recurrent features displayed in higher intensities. Horizontal scaling can be set between 1H and full frame and amplitude between half scale and x 10. Luminance only, Chrominance, YCrCb or RGB parades or stacks can be displays as can statistical and gamut displays. Markers can be inserted into the preview display to show the region being investigated. In the Vectorscope mode a graticule scaling for 75 or 100% or variable gain can be used.

For Audio monitoring, there are bar graphs displays have peak hold and have the associated graticules scales and ballistics selectable from whatever industry standard template required such as Digital, VU, PPM and Nordic etc..

All the scales and measurements of the Vidscope are made with precision and update the display generally within 2 TV frames in real-time: subject to the PC's CPU capabilities.



In designing Vidscope-HD, we have tried to make it visually self-explanatory. If you hover your mouse cursor over any button, a detailed description will appear. In outlining Vidscope-HD in this manual, we have attempted to keep it readable by brevity.

Before you start installing and running Vidscope-HD, you need to check the system requirements and understand a few simple technicalities about video monitoring and setting up the product.

**SAVE TIME : READ THE MANUAL FIRST**

## 1 GENERAL INFORMATION

### 1.1 WARRANTY

This product is manufactured by Hamlet Video International Ltd and is warranted to be free from defects in components and factory workmanship under normal use and service for a period of one year from the date of purchase.

### TERMS AND CONDITIONS

During the warranty period, Hamlet Video International Ltd will undertake to repair or at its option, replace this product at no charge to its owner when failing to perform as specified, provided the unit is returned shipping prepaid, to the factory or authorised service facility. The licensed user is entitled to downloads updates and improvements for the Hamlet website for a period on 1 year from first installation/registration.

No other warranty is expressed or implied. Warranty shall not be applicable and be void when this product is subjected to:

1. Repair work or alteration by persons other than those authorised by Hamlet Video International Ltd in such a manner as to injure the performance, stability, reliability or safety of this product.
2. Misuse, negligence, accident, act of God, war or civil insurrection.
3. Connection, installation, adjustment or use otherwise than in accordance with the instructions in this manual.

Hamlet Video International Ltd reserves the right to alter specifications without notice.

This warranty does not affect the statutory rights of the UK customer.

### 1.2 SAFETY COMPLIANCE

This product is manufactured and tested to comply with:

#### BS EN 61010-1 : 1993

Safety requirements for electrical equipment for measurement, control and laboratory use.



EMC COMPLIANCE

We: HAMLET VIDEO INTERNATIONAL LTD  
MAPLE HOUSE  
11 CORINIUM BUSINESS CENTRE  
RAANS ROAD  
AMERSHAM  
BUCKS  
HP6 6FB  
ENGLAND

declare under our sole responsibility that the product

#### HAMLET VidScope

to which this declaration relates are in conformity with the following standards:

EN50081-1  
Generic emissions standard for light industrial applications.  
EN50082-1  
Generic immunity standard for light industrial applications.

following the provisions of EU EMC directives 89/336/EEC and 92/31/EEC.

NOTE. During the EMC certification of this product, shielded cables were used. We recommend that they be used in operation.

## 1.3 OVERVIEW

### Features

- Runs on Desk or Laptop PCs
- Works on-line with most Video Capture cards\*
- Works with HDV or DV on Firewire
- Works off-line with files
- HD or SD operation in most formats
- Preview Monitor with Safe Area graticules
- Picture snapshots as jpegs etc
- 4:3 or 16:9
- Multi-standard operation
- Capturing to AVI files etc.
- Transport controls for files or VCR
- Still picture overlay for comparison
- Multi-Window or Single Display
- Multi-channel audio monitoring
- Timecode readout
- All HD and SD picture standards

### Measurement Functions

- Waveform, Vectorscope
- Looks and feels just like a conventional CRT
- Real time displays from 1 line to full frame
- Vectorscope with a standard graticule
- Vector scaling of 75% or 100% or variable\*
- Statistical histogram analysis
- Gamut Zebra and RGB displays
- Component displays RGB Y,Pr,Pb parade
- Line selector for waveform and vector \*
- Audio bar graphs VU, PPM, Nordic etc.
- Multi-channel Audio bar graphs, Audio Phase
- Audio spectrogram
- Surround Sound display
- Waveform snapshots\*
- Gamut and Audio alarm flagging
- Error and gamut Logging facility with a formatted rich text output document\*

### 1.4 **Important Advice**

Before using VidScope it is important to be familiar with the settings and control panel of your video capture card that you will be using with the VidScope.

For HDV and DV users, this will probably not apply unless a custom DV capture card is used, rather than the Firewire port of the PC.

Obviously, the most important setting this to check that shall capture card is set for the correct TV standard that you wish to use. The VidScope itself automatically varies its input settings and TV standard being used. The capture card will probably reject an input that does not match the settings preset. Refer to the manufacturers instructions; help manual or online guidance on this matter if in doubt.



Typical Firewire IEEE1394 Card



## 2 INSTALLATION

### 2.1 Hardware & Computer requirements

#### General Indications

- \* Windows-based desktop PCs older than 2004 may not be able to run it or be slow.
- \* Windows-based notebook PCs older than 2005 may not be able to run it or be slow.
- \* Apple Macintosh computers are not supported

#### Minimum configuration:

- \* Operating system: Windows XP Home with DirectX 9.0 or higher installed.
- \* CPU speed: Intel(r) Pentium(r) P4 D 3.5GHz+ or AMD 4000xp+
- \* System memory (RAM): 512MB
- \* 200MB Free hard-disk space
- \* 3D graphics card: 3D-capable video card with 128MB VRAM
- \* 1024x768, 32-bit true colour screen LCD or CRT

#### Recommended configuration:

- \* Operating system: Windows XP Home or Pro
- \* Dual or Dual core CPU Intel® CoreDuo(r) 2.0 GHz, Pentium D, or AMD Athlon 64 X2
- \* System memory (RAM): 512MB or more
- \* 10GB Free hard-disk space
- \* 3D graphics card: PCI-X with 128MB VRAM or greater
- \* 1024x768, 32-bit true colour screen
- \* Firewire IEEE1342 ports and/or HD Video capture card

### 2.2 Graphics Card

The 3D graphics capabilities your machine is very important for waveform realisation is real-time

The application should work satisfactorily on most AGP or PCI-X graphics cards from the following manufacturers:

- ✓ NVIDIA
- ✓ ATI
- ✓ 3D Labs
- ✓ S3

Possible problem cards: \*\* Intel 3D graphics, \*\* Matrox

The following steps can help you find out what type of graphics card you have. Note: the instructions that follow apply to the Windows XP operating system, but are similar for other versions of Windows.

1. Open the Control Panel window by selecting it from the Start menu. Double-click on the System icon in this window to display the System Properties dialog. Click on the Device Manager button in the Hardware panel.
2. In the Device Manager window, double-click the Display Adaptors icon to list the graphics card(s) for your computer.

The make and model of your graphics card appears under the Display Adaptor tab.

Check the Advanced Tab then Trouble-shooter tab or possibly the Adapter tab for the hardware acceleration setting. This should be set to maximum. A graphics card without any hardware acceleration is very unlikely to produce real-time displays with the Vidscope.



### 2.3 Loading and installing VidScope CD version

Insert VidScope installation CD into your CD-ROM drive in the usual way. The Hamlet set-up program should then launch itself automatically. If this does not happen after 20 seconds or so, carry out the steps as follows:

Click on the Windows Start menu and use Explorer or My Computer to find and open the appropriate CD drive. Locate using the browser navigate to the filename VSinstall.exe located on the CD-ROM drive file list. Double click or right click to get the dialog box, click open or run . The Hamlet install should now open



VSinstall

### USB Memory stick version

Insert VidScope memory stick into any of your USB sockets in the usual way. The device should be recognized automatically and a pop-up menu appears. From this explore the portable memory drive and Find the Vidscope set-up program called VSinstall.exe. If the pop-up does not happen after 20 seconds or so, carry out the steps as follows:



Click on the Windows Start menu and use Explorer or My Computer to find the portable memory device as a drive (probably E: ,F: or G: etc depending on how many other disk drives and CD drives you have).

Double Click the drive letter and navigate to the filename VSinstall.exe on drives file list.

Or right click on the file name and on the context menu, click OPEN.

In the Run dialog box, click open OK

The Hamlet install should now open

The USB Memory also contains the running license for



VSinstall

Vidscope and needs to be plugged in whenever the program is run. This means you can install on more than one computer, but run on only one at a time.

### Software version downloaded from the Internet

It is possible to download the software from the Internet. The downloaded file is password encrypted, before download a registration form should have been filed in Hamlet will email the unlock code it is therefore very important to supply correct user details as these will be checked before the code will be emailed out.

If you do not have the unlock code contact the Hamlet sales team using any of the methods listed on page 1.

Once the software has successfully been downloaded a file VSinstall.exe will now be available . Run this file and enter the unlock code at the prompt. The Hamlet set-up program should then launch itself automatically.

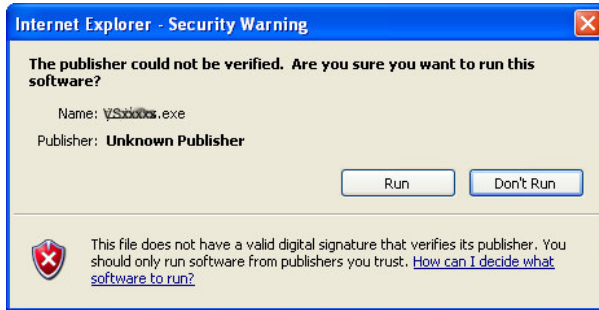
### 2.4 Continue Installation

Bear in mind that VidScope suite might need up to 30 Mb to install. (depending on your existing software installations). So may want to review your disk space before choosing the place to install the application.

Now open click on the VidScope install button. The Installer now take you through the various steps to get it loaded onto your system correctly.

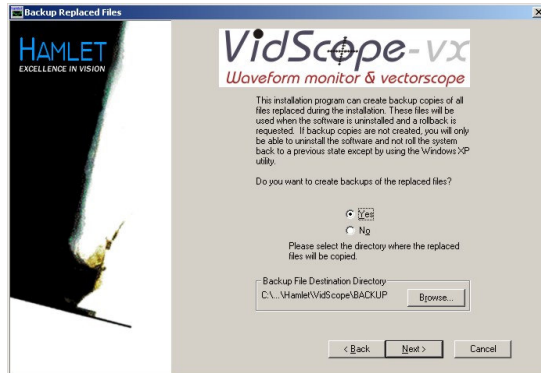
Please allow a few minutes for this process. Note: if you are upgrading an earlier version of VidScope, your vital files will be preserved.

If you get this warning message from Windows:

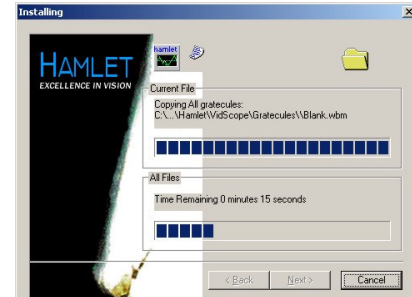


Just click on Run.....

The installation process is self-explanatory. When you get to the backups page, check YES if this is the first time install.

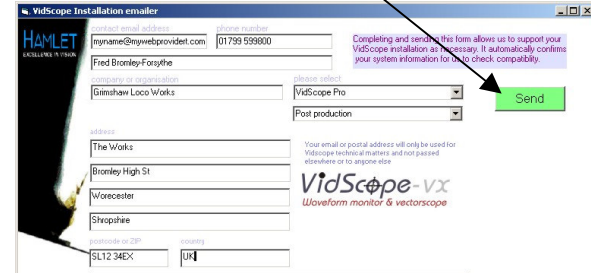


The install process should only take a minute or so....



At the end of the install pops-up a special registration page.

This logs the technical set-up of the Vidscope installation on your particular PC and its system information. This allows our service department to answer any queries should the need arise. An internet connection is required for this to successfully work. You can skip this form, but we will be unable to assist should there be any future technical help required unless the form has successfully completed.



### 3 OPERATING INSTRUCTIONS

#### 3.1 First Time Start Up

VidScope can be started immediately after the installer finishes.

You can run it from

START -> PROGRAMS -> ~ HAMLET

or from the desktop icon is installed.

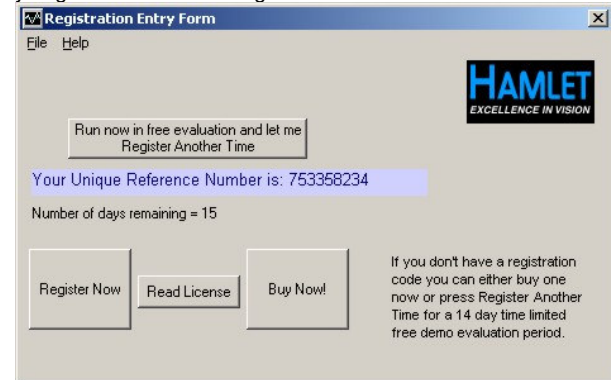


Vidscope-HD

On running you will see a splash screen

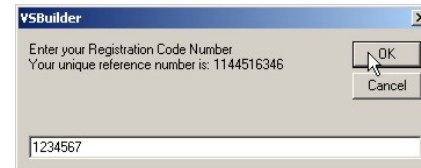


If you don't have the Vidscope USB stick (which automatically licenses): you get an invitation to register.



If you have purchased a copy of VidScope, then you will have been provided with a registration code. If you are only trying a demo version, then you can skip the registration until another time. This will allow you to try the program for 14 days only then the Vidscope software will not run you need to buy a registration key after this period.

Enter your name and then the registration code in the boxes provided.



### Registration continued

Once this is done successfully, you should not need to do it again. If this should be unsuccessful, then contact Hamlet with your Unique Reference Number displayed in the on-screen registration form and we will issue a new personal code. Do not share or distribute your registration code with anyone else as the code is unique to the installed PC, otherwise you may be prevented for getting further free product updates or support.

### 3.2 VidScope Start Window

Depending on your license, you can start one of different versions of Vidscope from the Start splash window

**Vidscope-DV** is for DV only users and operates in 8 bit. Capture cards, Advanced modes and special file formats are inhibited. Stereo only audio.

**Vidscope-Pro** Allows both DV source as well as SD Capture cards, Advanced modes and special file formats. 8 or 10 bit operation is allowed. Stereo only audio.

**Vidscope-HDV** Allows both DV, HDV, HDVCpro sources and NOT HD/ SD Capture cards, Standard modes and nospecial file formats. Only 8 bit operation is allowed. Stereo only audio.

**Vidscope-HD** Allows both DV, HDV, HDVCpro sources as well as HD/ SD Capture cards, Advanced modes and special file formats. 8 or 10 bit operation is allowed. Multichannel audio and surround-sound displays.

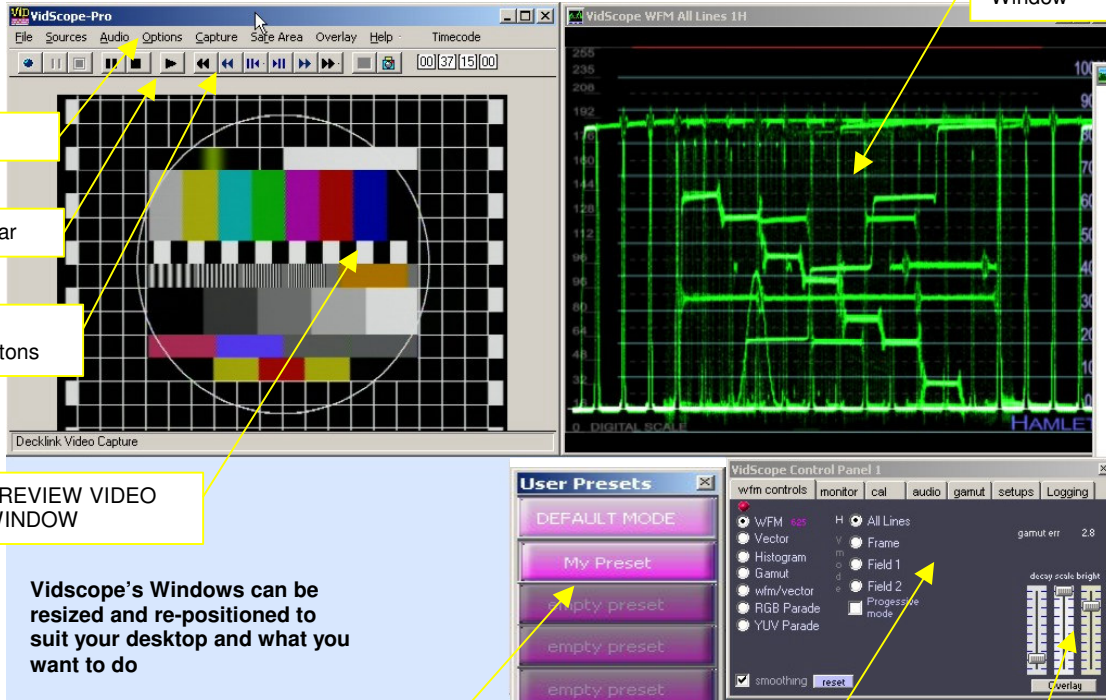
**Vidscope-444** Only allows HD and SD RGB 444 sources with Dual Link and HMDI Capture cards, Advanced modes and special file formats. 8, 10, or 12 bit operation is allowed. Multichannel audio and surround-sound displays.

### Demo / Trial Mode

In the start-up the Splash Screen pauses and the invitation to register appears. This delay does not occur with the registered/licensed version.

The trial/demo version is designed to function for a limited period only. Once this time expires, the software must be registered by purchase of a license or otherwise un-installed and deleted from the PC concerned.

### 3.3 Vidscope's Main Application Windows



Main Menu

Main Toolbar

Transport & Capture buttons

Vidscope Waveform Window

PREVIEW VIDEO WINDOW

Vidscope's Windows can be resized and re-positioned to suit your desktop and what you want to do

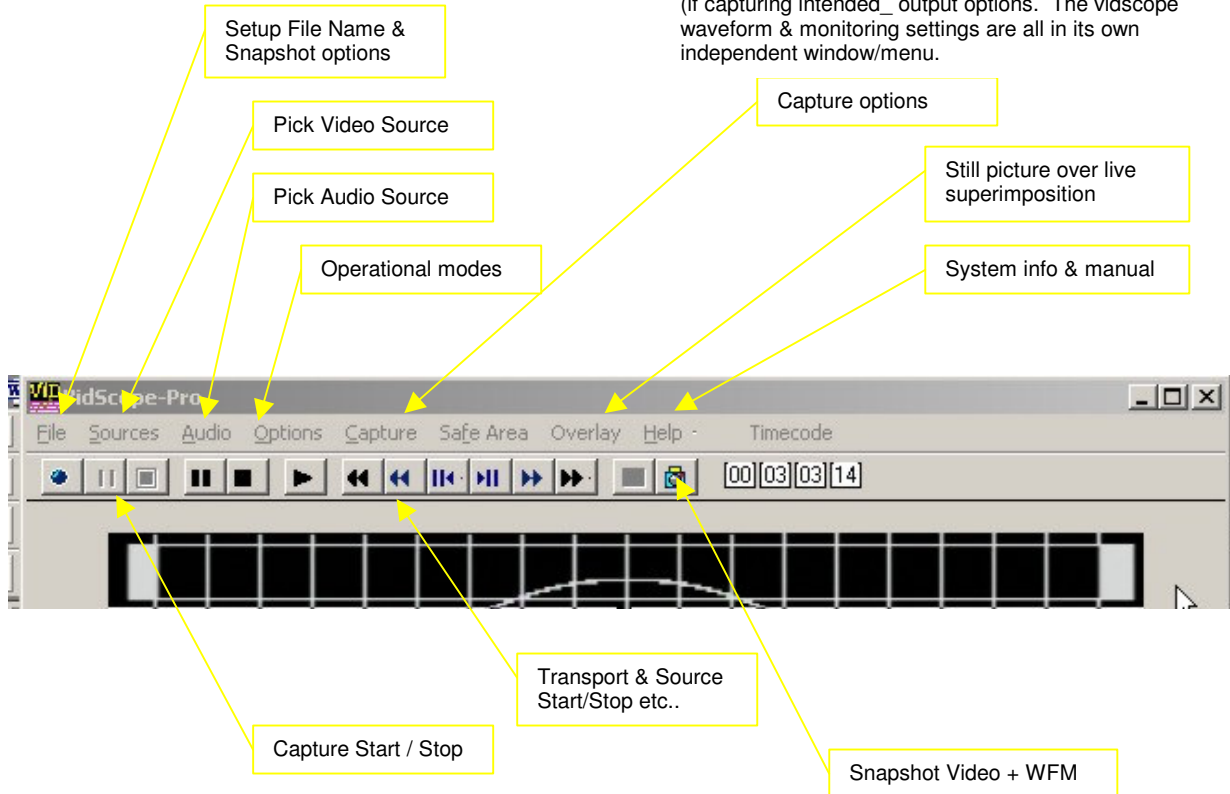
User Presets (optional) Window

VidScope Control Settings Window

Display controls

## 3.4 Main Window Menu & ToolBar

The Main window menu and toolbar sets the input and (if capturing intended\_output options. The vidscope waveform & monitoring settings are all in its own independent window/menu.



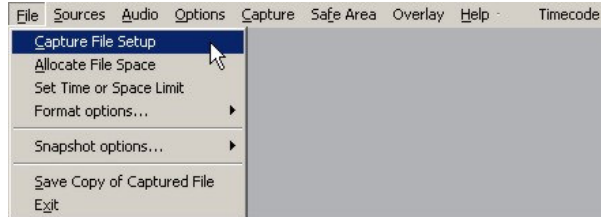
### 3.5 Main Menu Description

Main Menu Headings:

<b>File</b>	Capture file, format, snap-shot options
<b>Source</b>	Video, Video/Media file input selection
<b>Audio</b>	Audio source selection if available
<b>Options</b>	Preview monitor setups
<b>PVW</b>	Preview monitor framing tools, overlay and display modes
<b>Help</b>	Manual, system information and about vidscope

You can skip this section if you don't intend capturing....

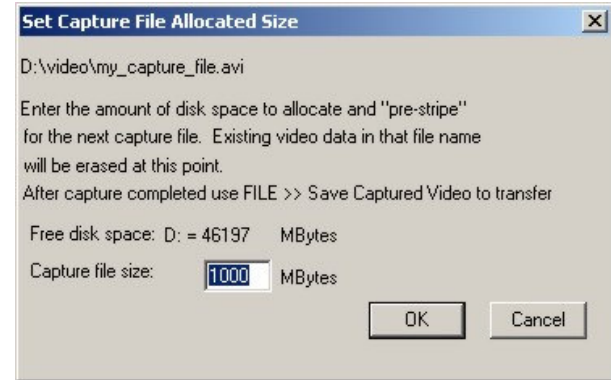
### 3.6 File



#### Capture file setup

This sets a new file name for capturing or picks an existing one. If available, use a different disk drive from that used for programs. You cannot select a CD-R or DVD type drive and expect it to work. For uncompressed SD video a Raid drive is desirable. For HD formats, a Raid drive is essential to be able to successfully capture in real-time without dropping frames.

**Allocate File Space** This brings up a sub-menu.



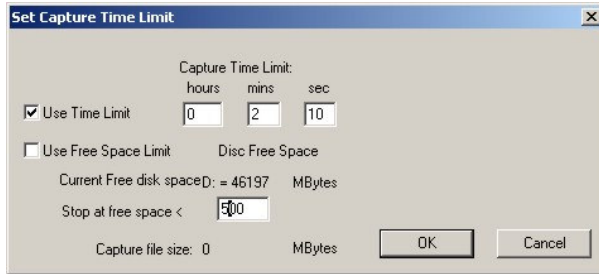
This allocates a block of disk space rather like pre-stripping a tape. This allows the writing process during capturing more smoothly than if a raw new file were to be used. The amount of space that is allocated should be larger than the clip / shot / sequence you intend recording. The default size is 1Gb (= 1000Mb) unless your free space is less than 5Gb. The same initial file can be used again and again because at the end of the capture, there is a utility to copy off the captured file of to the final destination and other file name.

#### Save Copy of Captured File

After stopping the capture process, this utility copies off the captured file of to the a different, final destination and alternative file name so that you can use the "pre-stripped" capture file again without have to allocate a new fresh block of space on the disk.

## Set Space or Time Limit

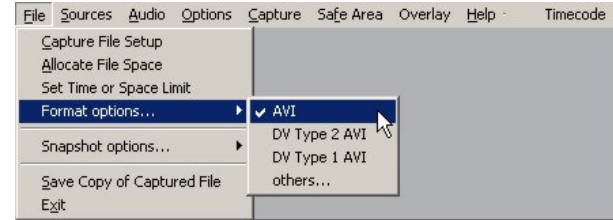
This sets an automatic stop of the capture process either at the end of a fixed amount of disk space or a time limit. This is a sort of safety valve in case you were to forget to stop a capture and use too much of your disc space.



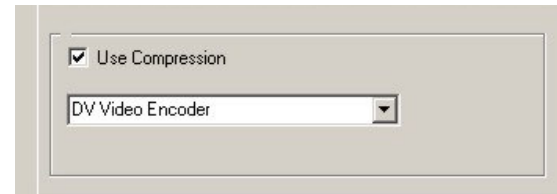
## Format Options

The video format option depend on what you intend doing with the captured file. An uncompressed AVI uses the most disk space, but offers the highest possible quality.

Compressed formats, relieve the stress on the disk system during record and the expense of extra CPU load. The menu option, **other**, offers various compressed formats. The selection shown depends on what CODECs your PC is configured with. Many of these come with NLE editor installed or can be downloaded from various websites.



When **others...** is clicked, you get the available CODEC sub-menu. What is listed, depends on what you already have installed. Any newly installed CODECs won't be available until after the next time you re-boot the PC system.



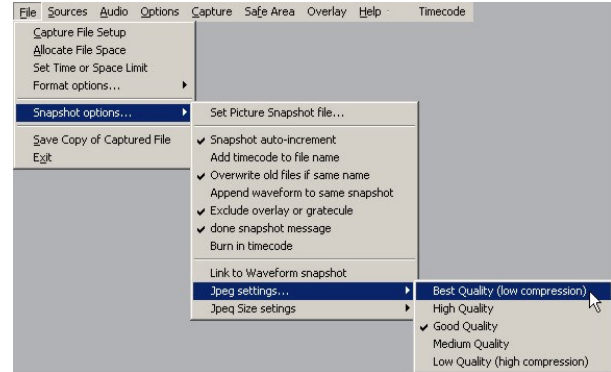
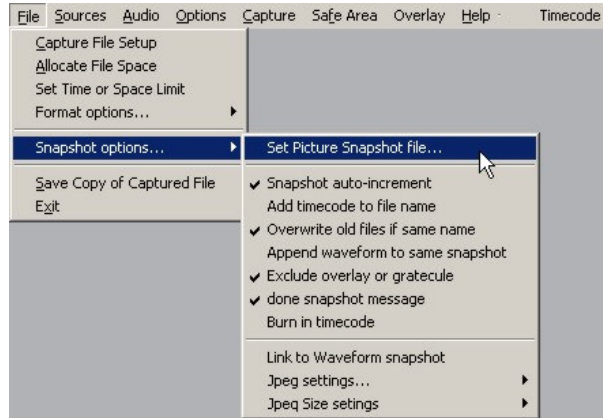


## Snapshot Options

These extensive options set what happen when you the snapshot button on the toolbar.



click



## Exit

This closes the VidScope capture application completely. Because its complexity, this operation is not instantaneous and might take up to 10 seconds to finish.

**Link to Waveform** combines a picture snapshot with a waveform snapshot as two separate files. See **Vidscope control panel settings for waveform only snapshots.**

### 3.7 Sources [Video Inputs]

The content of the Video Sources menu depend on your particular PC's configuration. This menu populates with the names of whatever video source you currently have available plus Files Sources. If you have no live sources, you get an information message when the program is first booted up.

Some of the PC's video sources or files may not be a suitable television format to work with Vidscope. In which case, you will get a warning message when you try to use such a source.

#### Clip File Source

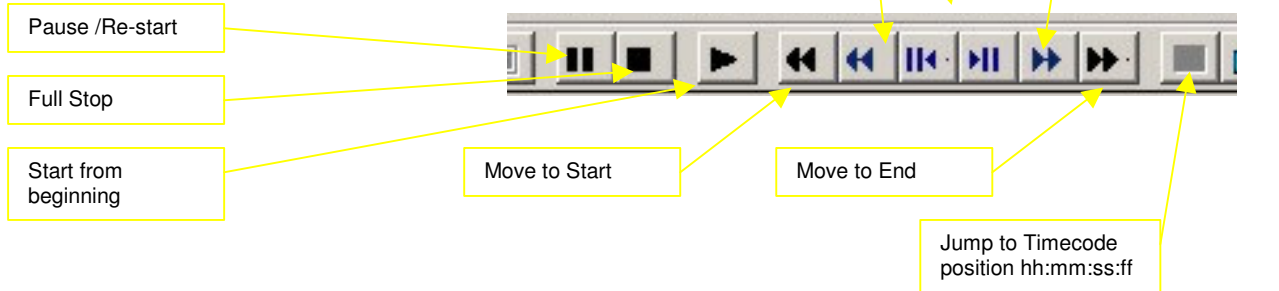
The clip file as a source is always available even if you have no capture card or device or DV active.

Clicking this option allows a pre-recorded video or A/V file to be streamed into the Vidscope system as if were a live source. There are VCR style transport control buttons that become enabled once the file is selected and loaded. Alternatively, an AV file can be dragged and dropped into the main menu/preview monitor from Windows (file) Explorer or another application for play/analysis.

The Vidscope should cope with most common file formats provided they decode to a standard TV format. The Vidscope decode capabilities depend on what CODECs you have loaded and installed that support DirectX and DirectShow Microsoft technologies.

**Codecs**

Microsoft Windows provides several codecs as operating system components. The available codecs always include those that ship with whichever version of the DirectX and Windows Media Player was included in the Windows release. Additional codecs may be installed when newer versions of DirectX or Windows Media Player or the Windows Media runtimes are installed. Third parties may install additional codecs on a host system; these codecs may be designed to work only with a particular application, or they may support general use by any DirectShow application.



### DV Sources

To use DV a feed, your PC must be fitted with a Firewire IEEE1394 port or a specialist video capture card interface. The camera or VCR needs to be switched on and plugged in the PC before the sources menu shows the feed on the list so that the Vidscope can use it. The default driver comes up on the list as: **Microsoft DV Camera and VCR**

If you have a custom driver and/or specialist card other DV names could come up on the menu option from which you can choose the most appropriate.

Once selected, the Vidscope's transport buttons will operate the DV camera or deck's main functions. An alternative interface provided by the driver manufacture can be accessed by clicking on the menu

**Options -> Video Source Control...**

### Setting up video sources

See Options -> Video Source Control or Stop to change Video Settings.

### 3.8 Audio

Use of the Vidscope application without an active Audio is permitted. But the reverse, Audio with no video source is not possible.

**No source selected** can be clicked (or shows ticked) where no audio in use or available.

The other source listed depend on what is installed in your system and available. ie: **Sound Card XXX**

**Audio source setup** . Click on this for the card manufacturers or driver provider's set-up and selection menu. You may find it more convenient to change these settings via the Windows **Control Panel** or double clicking the Volume control icon on the lower right system tray toolbar.

**Audio source embedded** gets ticked automatically to show that audio is interleaved with the Video source such as with DV or a DV file or AVI file.

### 3.9 Options



#### Restore Source(s)

When selected the current video source will be offered first when VidScope is next booted-up.

#### Show video dimensions

When selected the current video format H and V size is shown in the PVW window.

#### Use Skin Decoration

Turns on and off normal Windows appearance or skinned (decorated windows) on the main VidScope screens. This may need re-start of the application to fully take effect .

#### Lock Display to actual video pixel sizes

This sets the preview video display window exactly to the dimensions of the video format. This avoids any potential resizing artefacts that are possible with an arbitrary size window. When a HD is used, the window is half both V and H pixel sizes or else it might be too big for the PC screen and take too long to render.

### Integrate VidScope Displays

When checked, the waveforms window appears inside the main application window instead of the PVW monitor. Multi-window mode is pre-selected, but may be change to single mode.

### Show Presets

Only active in Integrated Mode,; puts the user preset button down the left hand edge of the display window.

### Video Source Control

This accesses the capture card manufacturer's properties page or menu or the driver controls appropriate for the source selected. If an adjustment result in any change in video format, such as changing from 525 to 625 operation then the next option must be selected. The preview window and the vidscope will not accept any change in format whilst running.

### Stop to change video settings

This stops the whole preview process to allow a format change to be made using the same menu, as mentioned above.

### 3.10 Capture

These options only apply if you intend capturing a live source to hard disk or dubbing from one file to another, as is possible.

**Start Capture** once the file, format and parameter are set-up, this start the capture process. This function is duplicated on the toolbar button



**Stop Capture** closes the capture file and reverts the input into preview only mode. This function is duplicated on the toolbar button.



**Pause** suspends capturing whilst the Vidscope continues to monitor the signal and display waveforms.



**Enable Capture** makes the capture functions operational. Turning on and off is a safety feature to prevent accidental recording.

**Master Stream** sets which source, audio or video provides the timing reference for the capture recording. Normally audio is the better choice.

**Start Info Message** enables/disables the start of capture information and precautionary warning message.

**Capture audio** enables/disables the audio channel(s) in a capture session

**Multi-Channel audio** enables/disables multi-channel audio if available from the in a capture session.

### 3.11 PVW Preview Monitor Display



#### Display Aspect 16:9

Sets the Preview video display in widescreen format irrespective of the chosen window size. Safe areas are changed to reflect different properties and will be turned off when the aspect ratio is changed.

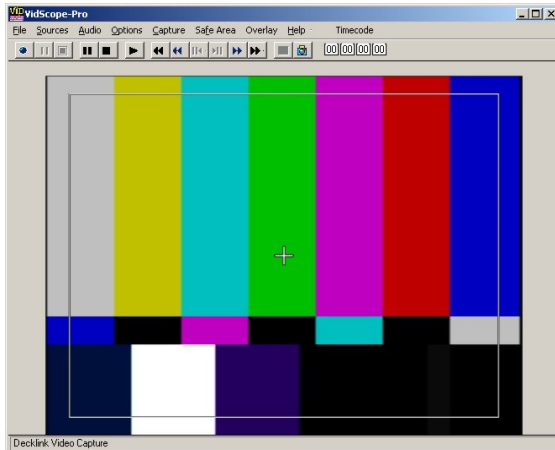
#### Display Aspect 4:3

Sets the Preview video display in standard format irrespective of the chosen window size.

### 3.12 Safe Area

Superimposes on the Preview Monitor Window a guide Graticule. This does not affect the video capture in any way.

<b>No safe area</b>	none
<b>Action safe</b>	90%
<b>Graphics Safe</b>	80%
<b>Protect 4:3 action</b>	16:9 composite graticule
<b>Protect 4:3 graphics</b>	16:9 composite graticule
<b>Pick custom safe graticule</b>	



You can pick any suitably configured graphics image as a custom graticule. Typically, you will find in the folder called

**C:\Program Files\Hamlet\Vidscope\Graticules** a number of examples:

**SafeOverlayComposite4-3.bmp**  
**SafeOverlayComposite16-9.bmp**  
**SafeOverlayComposite90.bmp**  
**SafeOverlayCompositeN.bmp**  
**SafeOverlayCompositeW.bmp**

Any .bmp files in this folder can be freely modified, deleted or used as templates. If you design and draw your own, preferably save to uncompressed .bmp files as jpegs will produce poor results. The graticule background should be a pure as this is used as a keying level for the overlay.

Those .wbm extensions are the system (.bmp) graticules and may be substituted by an expert use should the standard versions be replaced.

Copy the **blank.wbm** to a new file blank.bmp, the blank.bmp can be used as a template onto draw your own design.

### 3.13 Overlay

These options allow superimposition of a still picture on the live Preview Monitor Window for comparison or line-up guide. This function cuts out the Graticule function, as it uses the same facilities. Use of an overlay does not affect the video capture in any way. The still could be any standard graphic formatted file, but is most useful when a still is captured from your current source. Thus a camera could be set-up to match a previous shot or position an actor back on spot. It can also help in matching camera set-ups from previous configurations.

#### Load image overlay

Manual file selection

#### Overlay last snapshot

Automatic file selection after snapshot button clicked.

#### No Overlay

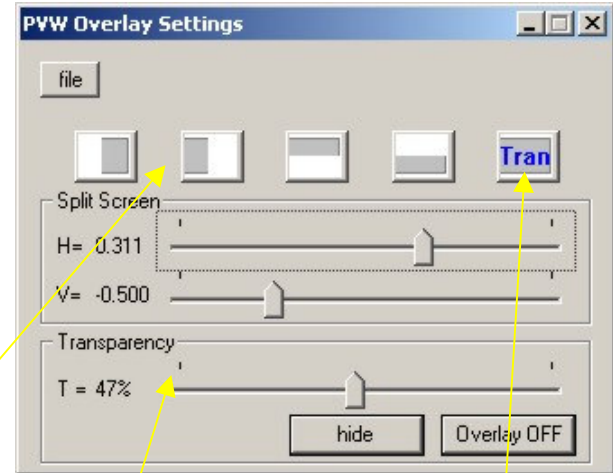
Turns off facility.

Note: Overlays do not get analysed by the waveform/vectorscope section on the application software.

Overlays can be included in a snapshot by unchecking the option in **Files->Snapshot options->Exclude overlay or graticule**

#### Overlay image settings

Brings up a sub-menu to select mask and transparency of still picture on the live preview.



Selects split modes

Fades still overlay picture on PVW

Transparent Full frame still overlay

## 4 Waveform & Vector Analysis

### 4.1 Main Control Panel

The Vidscope has a floating control panel and display window that can be arbitrarily placed anywhere on your desktop screen.

The control panel can go on any monitor if you have more than one attached to your display adapter. However the Vidscope display must be on the primary monitor for the graphics acceleration to work properly. Because of this hardware requirement, the window will refuse to be moved fully or partly off-screen.

This menu controls the main display function for the VidScope and accesses the other control menus available. It can be re-displayed by right mouse clicking on the VidScope display window or the VidScope icon on the task bar.

The screenshot shows the 'VidScope Controls 1' window with the following elements:

- Main Display Menu Tabs:** wfm controls, monitor, scale, audio, alarms, setups, logging
- Display modes:**  multi,  user
- Timebases and Line Selection:**
  - H:  All Lines
  - V:  Frame
  - m:  Field 1
  - o:  Field 2
  - d:  Progressive mode
  - e:  Progressive mode
- Interpolation:**  smooth
- Factory Reset to basic waveform:** reset button
- Other controls:** gamut err 0.0, decay scale bright sliders, Histogram, YUV Parade, RGB Parade, Gamut

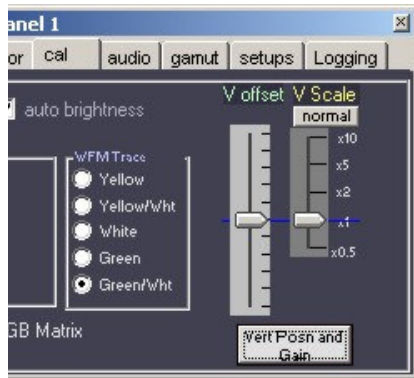
**Trace and Graticule Levels**  
**bright** varies trace intensity and can highlight low repetition features in the waveform. This is helped by **decay** which varies persistence.  
**Scale** varies graticule brightness. If **auto brightness** is set in the CAL menu these controls are changed by the timebase settings chosen.

## 4.2 Summary of Display Modes

### WFM – waveform

Standard Luminance waveform display either 1H All lines superimposed, 1 Field (interlaced mode) or 1 Frame across the X-axis. With the line selector on (advanced mode), then any range of individual lines can be displayed 1 – 150H and the starting line position varied.

To vary the gain and baseline offset, go to the **CAL** menu and click the **Vert Posn and Gain** button.



Use WFM first when selecting lines, then any other display mode shows just the line range selected

A Vmode option needs to be selected before Line Select will operate

In interlaced mode, line numbering is according to PAL/NTSC standard and in field order and displays in that order.

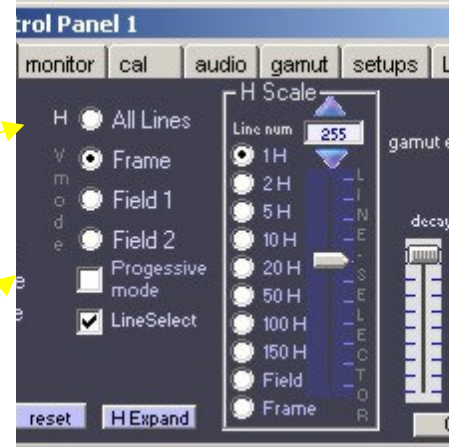
In **Progressive mode**, line numbering begins at 1, field 1 and 2 (odd/even) are meaningless, only Frame applies.

### Line Selection

(Advanced Mode Only)

When the waveform display mode is set for Frame or Field, the **Line Select** option allows a range of lines to be selected and displayed from any part of the picture. This is only available in pro versions when the **Advanced** option is checked in the **Setup**s menu

Vertical start line position is set either by the Line Selector slider, the line



number box or the up/down blue arrows.

The horizontal scale from 1H to 150H selects how many lines are displayed or 1 whole field or Frame.

Using the **H Expand** button allows zooming in on a narrow range of a single (1H) line. Expansion only operates when 1 H Scale selected.



## Vector Mode

The vector display is related to the line selection used. Set **All Lines** for a full frame display. If the source is full frame of live action material then interpolation can be left off. With digital stills, particularly test patterns, interpolation can make the display look continuous rather than a serial of dots (which they are!).

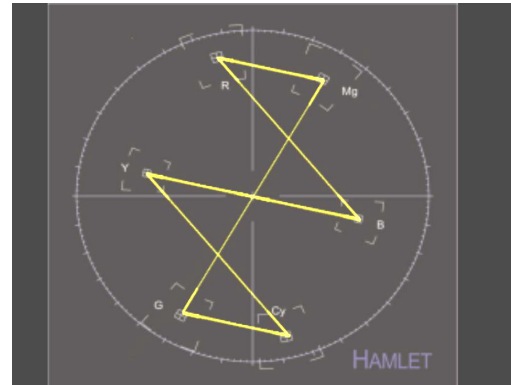
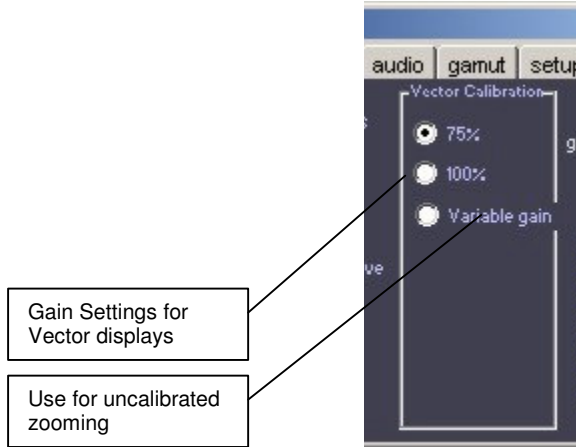
Use the 75% scale setting for normal observations.

### wfm/vector

Simply combines the vector with the luminance waveform display. The width of the waveform is necessarily restricted by that of the vector display.

Use the **Scale Tab** to find the Vector Scale settings to choose between 75% 100% or user set scaling (uncalibrated) modes.

Use 75% for normal measurements.



## Histogram

A statistical analysis of all the luminance values in a frame or a band lines pre-selected with Line Select. The average weighted Histogram display is useful for identifying bad coding with missing values, super black level problems and APL characteristics. In terms of 8 bit coding there should not be a high percentage below the value 16 (super black) or above 235 (super-white).

## RGB Parade

With a component source such as SDI or DV, Vidscope matrixes the signal according the either Rec.601 or 709 (see page **Error! Bookmark not defined.**) to produce RGB components. These are fed to the Preview Monitor and the RGB waveform display.

The RGB display is related to the line selection used. There are 3 modes of display according to the settings on the Stack and Superimpose option buttons that are revealed in the RGB mode.

Stack	Super	Display
		Standard Parade in broadside horizontally
☑		Each RGB component full width, stacked vertically
	☑	Each RGB component full width, superimposed – same a Gamut display mode
☑	☑	Not allowed

## Gamut

RGB superimposed to show where and RGB exceeds nominal black and peak limits.

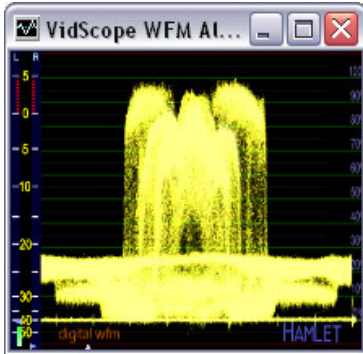
## YUV Parade

With a component source such as SDI or DV, Vidscope shows the individual Y, Pb, Pr (YUV) signals separately.

The YUV display is related to the line selection used. There are 3 modes of display according to the settings on the Stack and Superimpose option buttons that are revealed in the YUV mode.

Stack	Super	Display
		Standard Parade in broadside horizontally
☑		Each YUV component full width, stacked vertically
	☑	Each YUV component full width, superimposed Not a very useful display mode
☑	☑	Not allowed

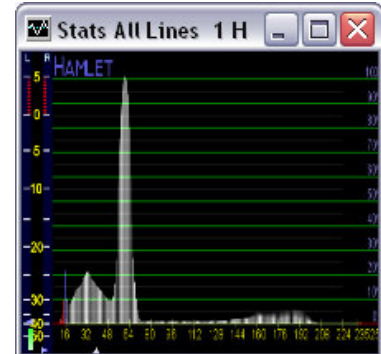
Example Displays



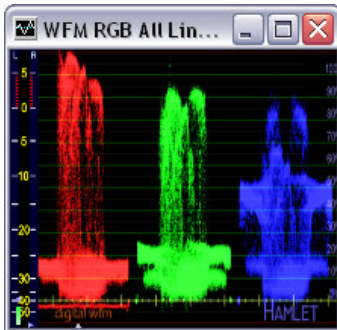
WFM – Waveform Display



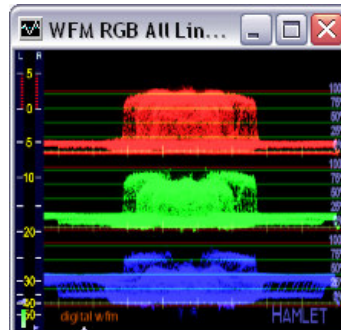
VEC – Vector Display



STATS – Statistics Display



RGB Display Parade



RGB Display Stacked



W/V – Waveform and Vector Display

### 4.3 Monitor modes

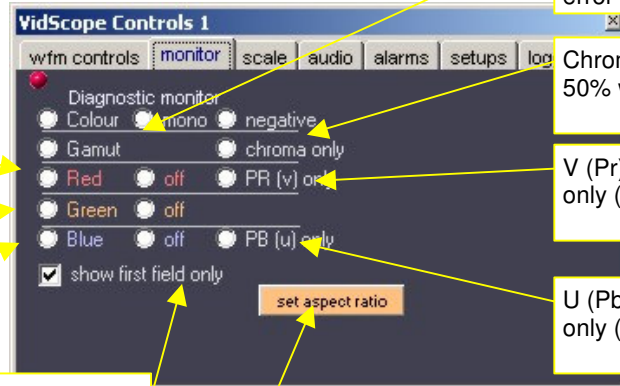
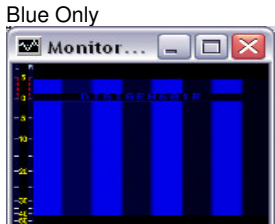
Click on **monitor** tab to display the diagnostic picture monitor.

This allows special picture display modes for fault or quality examination and supplements the main preview monitor.

Red channel only (decoded)

Green channel only (decoded)

Blue channel only (decoded)



Colour + zebra stripe on gamut error areas

Chrominance on 50% white

V (Pr) component only (no luma)

U (Pb) component only (no luma)

Improve performance on interlaced ore HD images by field skipping

Sub-menu to change Diagnostic Aspect Ratio (not PVW)



Gamut Zebra Display

#### 4.4 Scale Menu

This has various calibration tools and parameters. This changes if advanced mode is selected in the **setups** menu.

The screenshot shows the 'VidScope Controls 1' window with the 'scale' tab selected. The interface includes a 'wfm controls' tab, a 'monitor' tab, and a 'scale' tab. The 'scale' tab contains several settings:

- auto brightness:** A checked checkbox.
- Video Parameters:**
  - H pixels: 720
  - lines: 480
  - Frame: 29.97
  - Input mode: YUY2 8bit
- WFM Trace:** Radio buttons for Yellow, Yellow/wht, White, Green, and Green/wht.
- Matrix Selection:** Radio buttons for Rec.601 RGB Matrix (SD originated) and Rec.709 RGB Matrix (HD originated).
- Buttons:** VPosn/Gain, Vector Scale, and Set Audio Scale Used.

Callout boxes provide the following explanations:

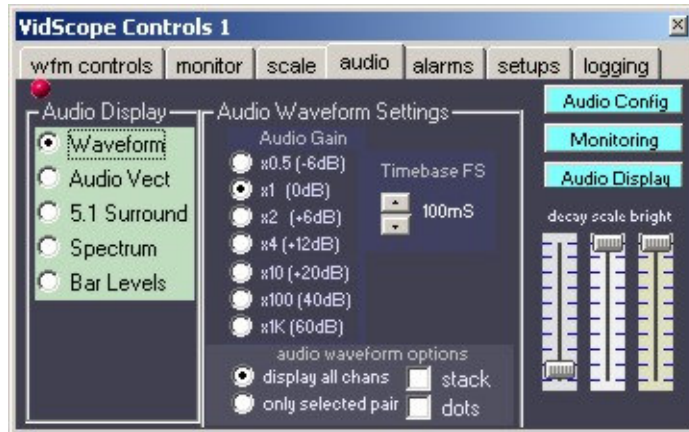
- Markers appear in the main video preview window if line selector is enabled in **wfm controls** menu** (points to the 'wfm controls' tab).
- Video format dimensions H x V** (points to the 'H pixels' and 'lines' values).
- Frame rate per second** (points to the 'Frame' value).
- Video format from the capture device or file/codec** (points to the 'Input mode' value).
- When checked uses the HD decode matrix otherwise uses Rec.601 matrix for SD (std def.)** (points to the 'Rec.709 RGB Matrix' radio button).
- Waveform traces colour options. Dual colours depend on repetition of waveform features and brightness set.** (points to the 'WFM Trace' radio buttons).
- Auto Brightness varies the trace brightness depending on the number of lines selected and V or H mode.** (points to the 'auto brightness' checkbox).

## 5 Audio Menu

Clicking the Audio menu tab puts the Vidscope into an audio mode. Waveform and Audio vector (phase) are standard, other optional display modes are included with the extra AudioPlus option pack.

### 5.1 Audio Waveforms

In Audio Waveform mode, the Timebase up/down buttons vary the display timebase. The gain buttons allow low amplitude audio signals to be zoomed up and down. The gain setting does not affect the audio monitoring via the PC's speakers.



The timebase can be varied between 2mS and 10 seconds full-scale width. The nominal (best viewing) position is 100mS. Some adjustment of brightness and or decay may be necessary for optimum results. The oscilloscope type triggering is automatic and occurs on zero crossings, slightly to the right of the left hand edge.

### 5.2 Multi-Channel Audio

If you have a source with multi-channel audio content, the channel option buttons become revealed.

**L1-R1** is the first stereo pair – and the only one you get if the source is not multi-channel or enabled as such using Stop Change Audio Settings in main menu. **Audio form information**

**L2-R2** is the second pair in the group in a multi-channel stream. **G1 to G4** are the group selectors in a multi-channel stream.

Whichever pair/group is selected is that indicated in the on-display level meters and the audio through the PC's speakers via the wave output channel on the soundcard mixer if enabled.

### 5.3 Audio Level Scales

Clicking **Show Level Settings** button changes the menu to allow different Audio Scales to be set. These options set both the scale types and the ballistics for the audio bar graphs shown on the edge of the waveform display window.

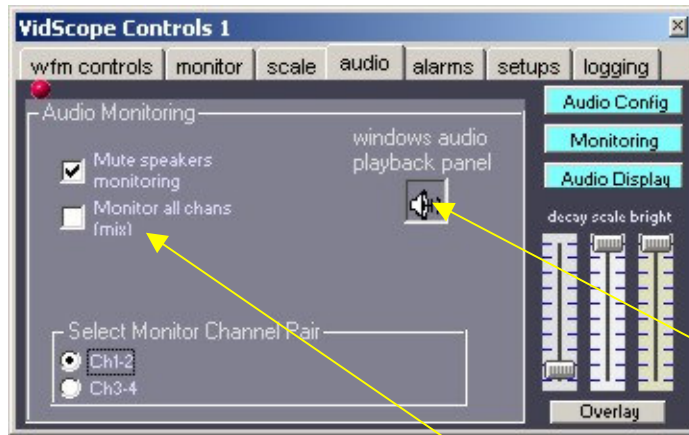


## 5.4 Audio Configuration



Embedded audio  
group selection

## 5.5 Audio Monitoring



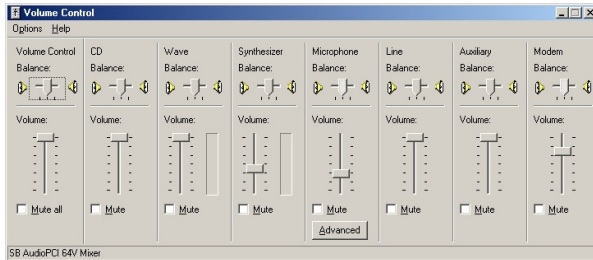
Access sound card settings for monitoring output

With multichannel audio: mix down all channels to stereo output



## 5.6 Soundcard settings

To be able hear the audio monitored through the computer's speakers or audio line out socket, the wave audio must be selected through output section of the mixer. This is independent of the recording mixer part of the same soundcard. Thus, the soundcard output mixer needs to be



accessed. This is sometimes labelled **Volume Control** or **Play Control** depending on the make or type of soundcard. This can be done either from the loudspeaker button on the vidscope audio menu or the mixer or speaker icon on the Windows taskbar at the bottom of the screen.

If you have two or more soundcards, you need to check the **properties** tab in the Windows mixer menu to make sure that you are controlling the correct soundcard. To select the Line-In socket or whichever socket you have used to connect the radio, either click the **select** check box or make sure it's **mute** is off (if the input has one).

The fader for the input selected needs to be halfway or all the way out. Then adjust the master volume of best listening.

## 6 Alarms Menu (formerly gamut)

Vidscope can continuously monitor for video gamut errors in your source material. It calculates those colour values and luminance level that exceed the proper RGB limits. It produces **actual error** as a percentage of the picture area that has such excursions. This figure is shown both on the **wfm control** and **gamut menus**.

### 6.1 Actual Error

A small gamut percentage can occur in a legal picture due to sight over-shoots on sharp bright edges. If errors occur over large areas, then the picture is not broadcast legal.

### 6.2 Average Error

The **actual gamut** value can be very twitchy and hard to read. The filtered **average gamut** is smoothed over the number of frames set in the **averaging frames** box to be more meaningful.

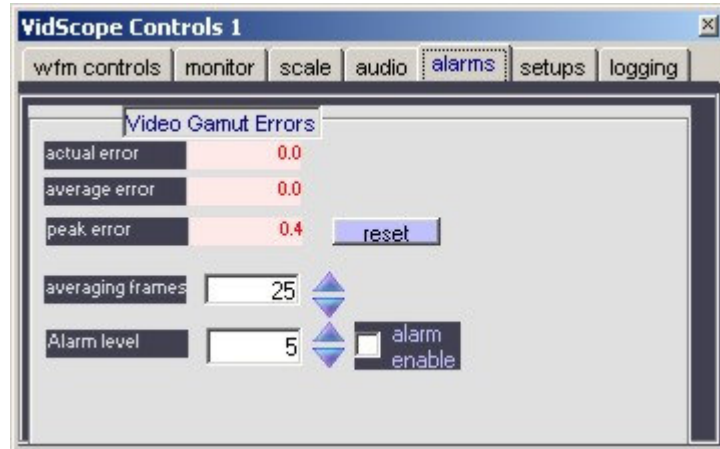
### 6.3 Peak Error

Every time the gamut value exceeds the peak value, it updates the peak value. This remains indefinitely until the **reset peak** button is clicked. Thus a worst-case gamut figure over an entire programme segment can be read off.

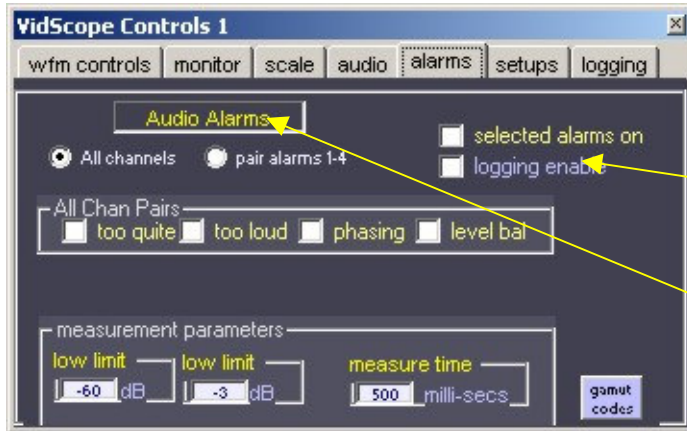
### 6.4 Alarm Flagging

The gamut **alarm enable** will flag a message on the preview monitor window to indicate excursions over the pre-determined limit you set in **Alarm level** box.

Similarly, common audio errors can be flagged in the same way by enabling the **audio alarm** option. This works for out of balance and apparently high (clipping) audio levels if present.

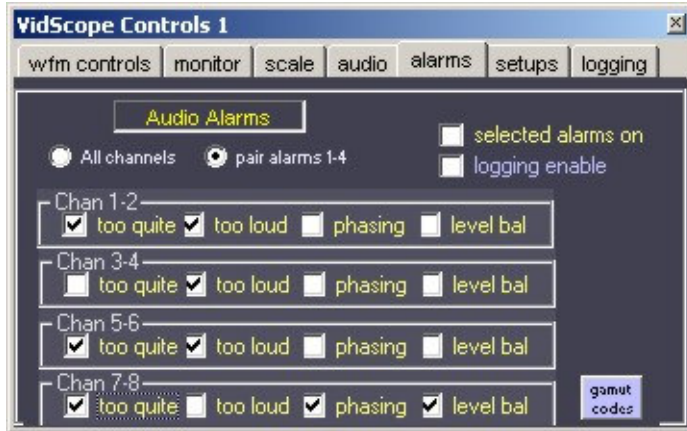


### 6.5 Audio Alarms and Logging Options



Use selection as logging option once logging activated

Toggles Video and Audio Alarm options



### 6.6 **Setups Menu**

This configures the screen layout, the waveform snapshot parameters and user presets etc.

#### **Screen Layout**

The main windows used in Vidscope are all floating – you can put them where you like on the desktop.

The **Screen Layout** option buttons allow the windows to be restored to regular positions.

**Optimal PVW + Small WFM** sets a large preview monitor size and fits the waveform window in what ever space if left to it right. The control panel is always repositioned below the waveform window if possible.

**PVW Half+ WFM Half** sets a both the preview monitor window and the waveform window widths to half the full desktop screen width and displays these windows side-by-side at the top of the desktop. This may compromise picture quality in the preview monitor due to scaling. The control panel is always repositioned below the waveform window if possible.

**Previous Positions/Sizes** restores the display that you last set manually.

**Positions as User Saved** sets positions as specifically saved using the **Save Current Screen Layout** button

**Restore positions on start-up** ensures that the current layout is restored the next time Vidscope is booted-up.

#### **Advanced Mode**

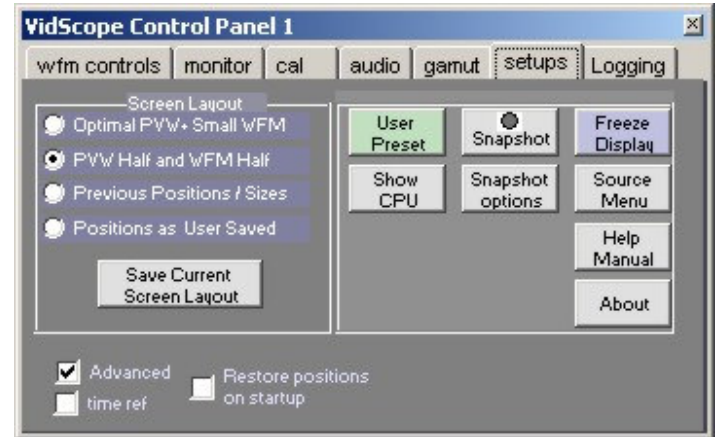
This feature is only available in the-pro version and not in the DV only version. Advanced mode, when checked, turns on the line selector facilities, logging menu and full snapshot facilities.

#### **Freeze Display**

The freeze button stops both the waveform and preview monitor displays whilst other functions, including capturing continue normally. Pressing Ctrl+f on the keyboard operates freeze from any menu.

#### **Source Menu**

This reveals the preview monitor window on the desktop if it has been minimized or “lost” under something else.



If you lose, hide or kill the Control Panel window itself, it can be revealed by right clicking on the waveform display window.

Note: If the Vidscope Control Panel window ever gets left unnecessarily on the desktop , it can be closed by the keyboard command: Ctrl + Z.

### 6.7 User Presets

Any current Vidscope state of whatever settings have been made can be memorized to a user preset. Then those settings can be recalled again without having to go to any of the standard menus and controls.

Clicking on the **User Presets** button in the Setups menu brings up the user settings sub-menu. Once displayed, this window can be positioned anywhere on the desktop for convenient use.

To save a user preset, click **Save User Preset** and then the preset option check box to be set. Then in the dialogue box provided confirm the name for the setting. Any name may be used, although if too long they may not fit properly into the menu once set. There are 10 user presets provided on the user settings menu and these can be labelled with any suitable word that fits in the space. These are automatically saved permanently for later recall.



To recall a setting, just click whichever setting option required.

Note: A saved preset will change the **Advanced** check box in the Settings Menu to whichever state it was in, when saved. This could mean the appearance of the control menus will change to reflect the changed mode.

### KEYBOARD SHORT CUTS

Numeric keypad + increment to next user preset

Numeric keypad - to go back to previous preset

Numeric keypad Home go to user preset 1

### 6.8 About

The about button in the User **Setups** menu shows the version information for your installation of Vidscope. It also accesses the license information should you need to refer to it.

### 6.9 Multi-Mode Display

Vidscope-HD+ has the ability to display up to 6 separate waveform windows at once. This mode is switched from the normal single mode by the Multi button found either on the waveform menu or the setups menu.

When in Multi mode you can either have a default set of window modes or switch to the User mode, where you can select any arrangement of the six windows you choose. Multi-mode is automatically selected if the main application window: **Options >> Integrate Vidscope windows** is clicked. This puts the whole display into the one window with the multiple panes.

#### Multi –Mode Default

The six windows are identified by pane numbers 1,2,3 on the top row and 4, 5 and 6 on the bottom row. In default multi mode the control menus automatically linked to the default panes.

PANE 1	PANE 2	PANE 3
Always a picture monitor	Always audio level bars	Any selected audio display default to audio vectors
PANE 4	PANE 5	PANE 6
Always Luminance waveform (wfm)	Always vectorscope default 75% cal	Can be set by user to either histogram, component RGB parade or gamut

If you left click on any display window, the menu will change to the current mode for that window for convenient change.

Double left clicking a window will zoom up that display to single display mode, cancelling multi-mode. Double clicking again, restores multi-mode.

### Multi – User Mode

The first time user is selected, the six windows may very well be blank or in random displays. To set any window, left click on it – the pane number will appear in the title of the control menu. Then select the display mode required using any video or audio control menu. Do this in turn for each pane required. Move the pane vertical and horizontal dividers to arrange the relative geometry for optimum clarity.

If you left click on any display window, the menu will change to the current mode for that window for convenient change. In user mode it is recommended that the settings are saved as User Presets for later recall. These are found either in the setups menu or displayed in the main application window once Options >> Show Presets is selected.

Double left clicking a window will zoom up that display to single display mode, cancelling multi-mode. Double clicking again, restores multi-user mode. If the Show Title option is checked in the setup menu, the bar highlights when selected.

The setups menu has a set of buttons for Multi and user mode. These reveal some additional controls to clear the panes or set default positions which are self-evident.

- #### Saving a Multi-mode set
1. Setup the display set you want in user mode
  2. Find the **Save Preset** button at the bottom of the button stack
  3. Click this once to change message to Click Preset Button
  4. Click the preset button to save into
  5. Enter your descriptive text for your arrangement so as to fit the example button shown in the save menu..
  6. Click OK in the save preset box.

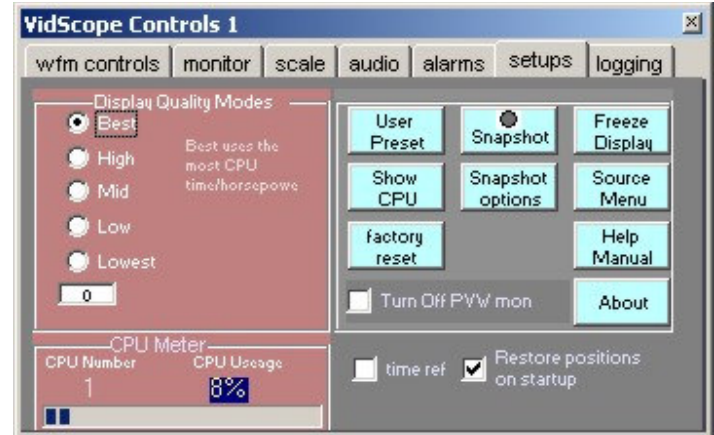
## 7 Setups Menu CPU & Quality

The Vidscope uses considerable CPU horsepower. Usage of the CPU is shown when you click on the **Show CPU** button. This figure is the aggregate of all the applications currently running on your PC of which of VidScope is a proportion. If the CPU usage is over 85 percent then there could be problems for any time critical job such as capturing performance.

To avoid performance problems with capturing or other critical applications, VidScope's display quality can be reduced, making a saving in CPU usage.

Experiment with different display quality modes to reduce CPU usage. As for quality introduces the waveform and preview monitor update rate is progressively reduced making a saving the number crunching activities of VidScope.

The display quality mode setting is retained and restored the next time VidScope is run. The entry box below the lowest display quality option is for custom mode numbers.



### 7.1 Waveform Snapshot Options Menu

This configures the screen layout, the waveform snapshot parameters and user presets etc.

Waveform snapshots are made whenever the red ball button in most menus is clicked. To use facility, the filename should be first set up in the required destination.

The auto number option automatically increments of number appended to your chosen filename if required. If the auto number option is unchecked, then the filename given will be overwritten each time a snapshot is confirmed.

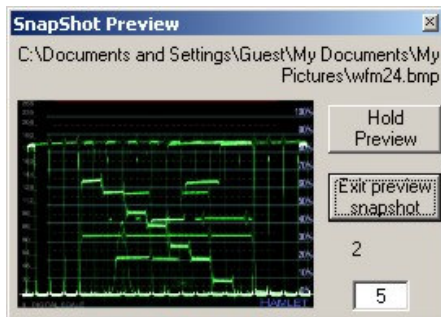
The file format selected in the filename picker may be either uncompressed .BMP or JPEG or another compressed image format. When the compressed image file format selected, then the compression quality option buttons are revealed. For the highest quality snapshot images select 1:1 and best.

If the image preview option is used then whenever the snapshot is clicked on a temporary window pops up to confirm the waveform image and filename. The default duration for the pop-up and five seconds.



This duration may be changed by clicking on the option box at the bottom of the Snapshot Preview.

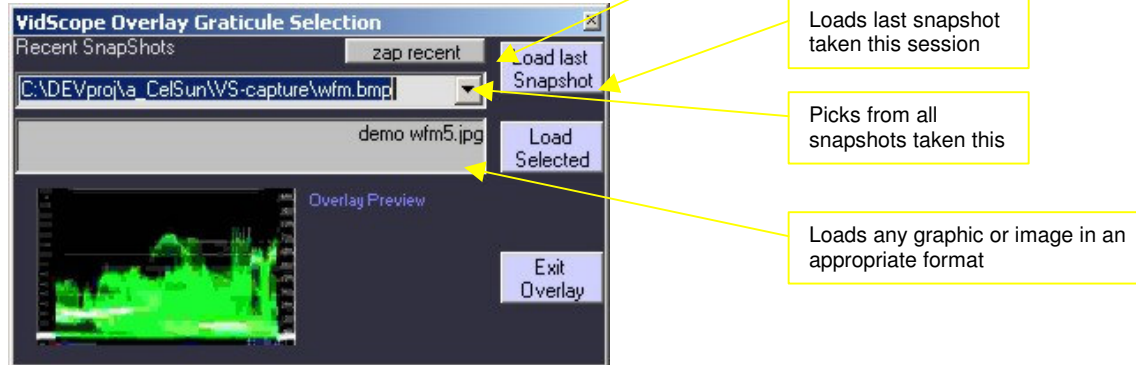
Snapshots of waveforms may be used for later comparison with a live source by means of overlays. For this purpose always use highest quality settings and 1:1 for optimum appearance.





### 7.2 Overlay

The overlay button is located just below the decay, scale and bright sliders on the **wfm controls** tab. This reveals the overlay menu.

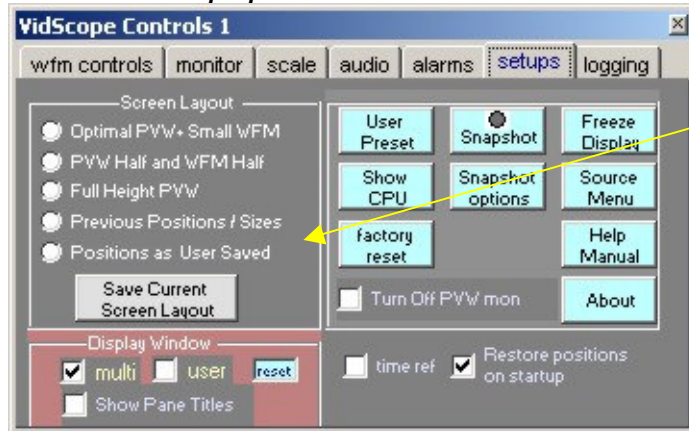


The overlay still substitutes for the graticule currently in use in the waveform display. The snapshot image has both the previous waveform a corresponding graticule imbedded in it. Thus when an overlay is select, you get both together. The scale slider controls the intensity of the overlay. If this is at minimum, you see nothing!

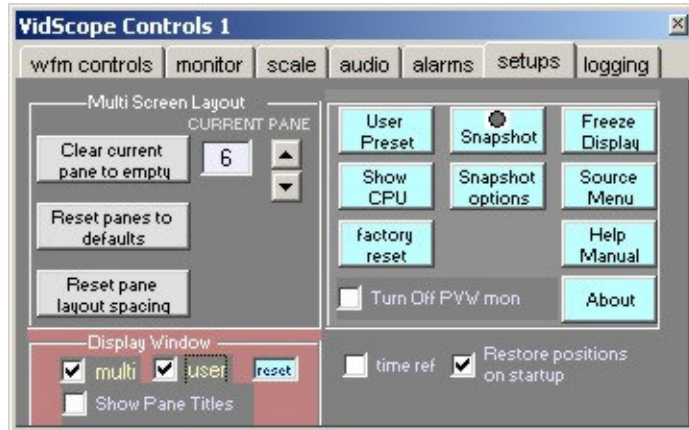
There are three ways to select an overlay image. The overlay preview shows what has been picked before loading to the waveform display.

If you snapshot a display with an overlay present, the snapshot will be a composite just as seen.

### 7.3 Other Setup Options



Screen Layout sub-menu only is visible and applies when the VidScope display window is "floating" and not in Integrated Mode.



### 7.4 Pane Editing in User Mode

The active window pane can be selected by single left mouse clicks or by using the Multi Screen Layout sub-menu. The up-down buttons navigate the 6 windows displayed.

## 8 Logging Menu

(advanced mode only)

the logging facility allows a text-based document to be built containing the detected errors in a programme segment to be listed against time code.

### Setting up a log operation

Click on video options and select those factors that you wish to be included in the log. Similarly, click on audio options and pick those audio aspects that also want to log.

Then **set logging file** to the name and location you require. The logging facility uses a RTF format text document based on template. This you can customise in Microsoft Word or some other text editor.

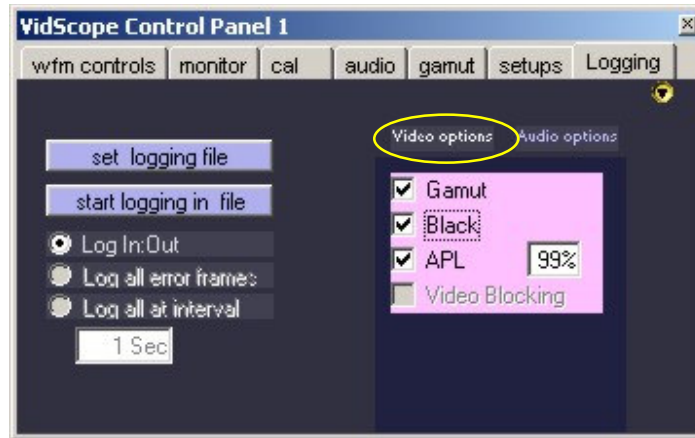
Once the logging form has opened a log, it may be manually edited by the user. You could simply type any relevant information about the programme material etc.

when you are ready to run along simply click on the **start logging in file** button.

When you wish to stop logging operations, just click on **stop logging in file** button.

Stopping a video source playing or stopping a capture automatically closes the logging operation.

It is possible to use the same log file for multiple program segments.



## Logging Form

the logging form may be conveniently repositioned anywhere on the desktop or minimised during the logging process. To edit any of the information listed on the form, the logging must have been paused/stopped completely. (**pause** or **stop** buttons).

The **add text** button conveniently you add your annotation or edit anywhere in the document.

The other button functions in the logging form speak for themselves, however the print button sends the document to your default printer with its current default settings.

The screenshot shows the 'VidScope Logging' window. At the top, there are five buttons: 'pause', 'stop/save', 'add text', 'delete', and 'print'. Below the buttons is a form with the following fields:

<b>Project:</b>		<b>Cameraman:</b>	
<b>Take:</b>		<b>Reel:</b>	
<b>Camera</b>			
<b>Media</b>			

Below the form, there is a 'Log:' section with the following text:

```
C:\WSLogs\WS-log4.rtf Log started 05/09/2005 01:31:52
00:00:00:00 : Start Log
```

## 9 SPECIFICATIONS

### 9.1 Vidscope-HD version

#### Host Platform

\* Operating system: Windows XP Home or Professional with DirectX 9.0 or higher installed.

#### Input Sources

HDV or DV 625/525 (SD) subject to a IEEE1394 port being available

Any television signal capture device connected to the PC conforming to the WDM standard or otherwise supported by Microsoft DirectShow/DirectX8.1+.

Television standard supported subject to capture device or file formats:

1080i, 1080p, 720p any format up to 1920H x 1080V

PAL 625 720x576 and any analogue derived 625 coding.

NTSC 525 720x480/486 and any analogue derived 525 coding.

#### Display Modes

Waveform, Luminance All lines (1H), 1H to 150H, 1 Field 1, Field 2 (interlaced mode) Frame progressive or interlaced.

RGB, Parade, Stacked and Overlaid

YUV (Y.PrPb.) , Parade, Stacked and Overlaid

Vector, 75%, 100% or arbitrary scaling 1-300%

Histogram, weighted average of discrete luminance values

Combined waveform and vector

Audio waveform, gain selectable -6 to +40dB

Audio vector and phase

Audio level bar graphs,  
VU,PPM,NORDIC ,BBC,EBU,70dB Digital scales

Spectrogram stereo or multi-channel using 1024 point FFT

Surround-sound display with GMO graphics

#### Timing Measurement

Uncalibrated nominal 52 uS full screen 1H modes

Sync/blanking not displayed due to capture card general limitation

#### Amplitude /Measurements

Video levels +/-0.5% digital levels, absolute analogue levels subject to gain/calibration of capture source used.

Audio waveform +/- 1% digital level, absolute analogue levels subject to gain/calibration of capture source used.

## 10 CONTACT DETAILS AND SUPPORT

if you find a problem or encounter difficulty installing or using the VidScope software product, then first find and click on the VidScope problem reporting utility. This you will find in the list of programs clicking through the Windows:

**Start-> ~Hamlet VidScope-> VidScope fault reporter**

**This automatically emails technical information about your installation to our engineers.**

**If this form is not used and then we are generally unable assists directly.**

For any form of assistance in maintaining your Vidscope, please contact: [sw-service@hamlet.co.uk](mailto:sw-service@hamlet.co.uk)

Telephone support is not available for this product, however if you user fault reporter and e-mail with your particular problem first and request telephone call we will try and respond within 24 hours during the warranty period.

If an on-line Internet connection not available to your system, then telephone for further advice.

For software updates and more information see:

**<http://www.vidscope-HD.co.uk>**

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**VidScope**-vx  
*Waveform monitor & vectorscope*

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**EXCELLENCE IN VISION**