DATA HARVEST

VELANALYSIS III

BBC VERSION

Contents Page.

Copyright Notice

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No copyright protection is built into the disc for the convenience of the end user and as such Data Harvest trust that the purchasers of Velanalysis III will respect copyright, by providing copies only for their own use on one computer.

Warranty

Velanalysis III is warranted for 12 months from the date of purchase against malfunction due to poor workmanship or materials. Data Harvest limit this action to replacement of the disc and take no responsibility for any consequential damage or delays.

Velanalysis III is guaranteed to work on the BBC B, B+, and Master series of microcomputers fitted with Acorn DFS, Acorn compatible sideways ROMS such as Wordwise or Wordwise Plus. No assurance is given that Velanalysis III will work with other versions of DFS or other sideways ROMS but we normally expect that there will be no problems.

1.0 Introduction.

Velanalysis III supersedes version I and II. The program offers a more comprehensive analysis and plotting routines. When data is transferred to the micro the data is displayed immediately on the screen. New features include:

- enhanced expansion facilities, any portion of the graph may be selected and displayed on the screen.

Cursor measurements have added features:

- Automatic plotting up maximum, minimum, mean and RMS values are available.

- The ability to derive a moving average from the data with a variable window is provided.

Velanalysis III is very simple to use. The pull down menus toggle with either the 'esc' or 'copy' keys. Menu selections are made by selecting the first letter of the word.

2.0 Getting Started.

You will require :-

1)   A BBC 'B', BBC B+ or BBC Master microcomputer.

2)   A colour (Preferable) or black and white monitor.

3)   A disc drive capable of reading 40 track discs.

4)   Optional - a suitable printer capable of receiving and printing a screen dump. - See appendix 2.

The very first thing you should do is to make a copy of Velanalysis III and place the original supplied by us in a safe place away from the computer. Only work on back up copies of the original.

Now read through the whole of section 2 to 4 once, before doing anything.

Initially in order to familiarise yourself with Velanalysis III it would be useful if you had Vela connected to an oscilloscope as well as to the user port of your micro computer (Refer to Vela Technical Manual for details on making the appropriate connections). This will enable you to log data on Vela and then compare the output to the oscilloscope with that displayed on your computer. An easy way of obtaining a quick data logging on Vela is to use program 01 parameter 01, trigger set to Internal. Touching channel 1 input with your finger should record the AC noise produced by your hand. Experiment with the amplifier gain switch on channel 1 until you obtain a 50Hz AC waveform when played back to the oscilloscope.

If you have problems - refer to Vela technical manual page 18, section 2.1 - Fast Transient Recorder.

From here on it is assumed that you have Vela connected to the micro computer and that some logging has been completed on Vela which is now flashing O-P.

Insert Velanalysis III into drive 0 of your disc drive. Boot the disc by pressing 'Break' while holding down the 'Shift' key.

Our logo page will appear for a few seconds then the Main Menu will be displayed.

NB: The pull down menus are activated by pressing either 'esc' or 'copy'.

2.1   Configure.

The purpose of the configure program is to allow the user to change the colours used or the position of the displayed information on the screen.

Press Break then type *CONFIG followed by return.

Use the F key to change the foreground colour and B key to change the background colour.

Use the up or down arrow keys to centralise the display.

When you are happy with the display press return. You will then need to 'Boot' the disc as before.

You will then be returned to the menu as before but the screen will be as you have configured it. The screen will always appear in this way unless you use *CONFIG again.

2.2   Main Menu Options.

The following options are available from the main menu.   At any time you can abort and return to the main menu by pressing escape.
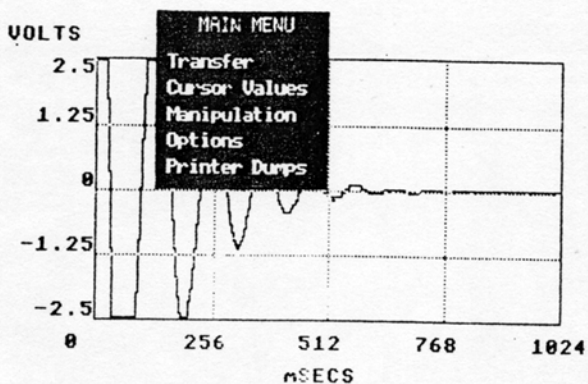
2.2.1 Main Menu Option - Transfer

Selecting 'Transfer' by pressing 'T' gives you the option of transferring data from either VELA or from Disk.

If VELA is chosen then you are requested into which of the 4 buffers to store the data.   As VELA has 4 channels, each channel could be stored in each buffer.

If Disk is selected then further selections are given.   Data may be loaded from disc, again a buffer will be requested.   Similarly to save a data file you will be asked for the buffer you wish to save. Once selected you will be prompted for a file name.

Two further options are available under Transfer Disk:

Catalog   -   will display a directory of the saved data files on your disc.

Change Disk -   allows data to be saved/loaded from another disc drive.

2.2.2 Main Menu Option - Cursor Values

Selecting 'Cursor Values' by pressing 'C' brings the cursor menu into view.

Buffer 1   Buffer 2   Buffer 3   Buffer 4
mVOLTS
-38.23
mSECS
1576
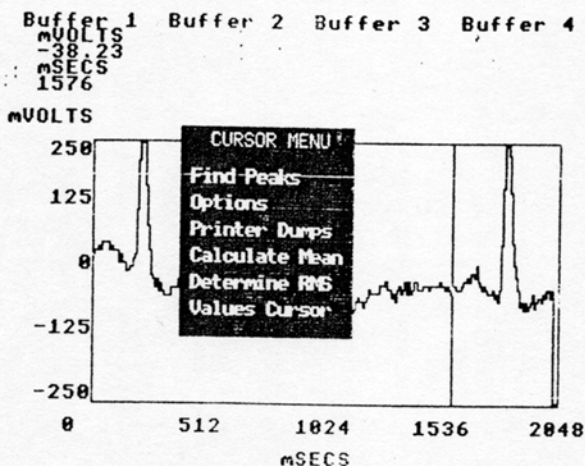
Find Peaks	-	Automatically finds the greatest or smallest value on the screen display.
Options	-	Label **axis** - will scale the x and y axis in the appropriate units. If Educational Electronics' sensors are being used then the scaling will be in the correct physical units.
	-	Graticules - toggles the graticule lines on the display.
Printer Dumps	-	Allows the screen display to be printed. A choice of size of screen dumps are available.
Calculate Mean	-	Determines the arithmetic Mean of the wave form. This may be either the whole captured data or if the screen has been expanded only the mean of that portion on the screen.
Determine RMS	-	The same as 'Calculate Mean' except that the RMS is calculated.

Values Cursor   -   Initiates a cursor that can be moved
                              through the waveform by the left and
                              right arrow keys.   The cursor may be
                              speeded up by pressing the 'shift' key
                              at the same time as the arrow keys.

2.2.3 Main Menu Option - Manipulation

Selecting 'Manipulation' by pressing 'M' activates a new menu.
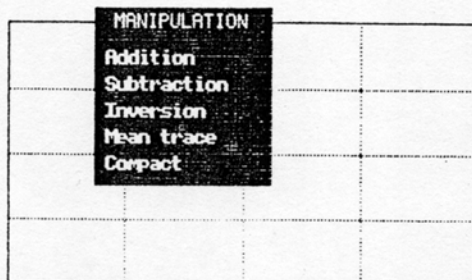
Addition   -   Allows two buffers to be summed.   You
                              are promped to choose the buffers and
                              the   resulting waveform is to   be
                              stored.

Subtraction   -   Similar to 'Addition'.

Inversion   -   This   simply   inverts   the   waveform.
                              You are requested the buffer to invert
                              and the buffer to store the result.

Mean Trace   -   Calculates a moving average.   You are
                              requested to select the buffer from
                              which the moving average will   be
                              calculated   and the buffer for the
                              result to be stored.

                              Six   choices of window size are given
                              for   the   moving   average   to   be
                              calculated.   To select a window press
                              the   first digit of that   window i.e.
                              for 16 point window press 1.

2.2.4 Main Menu Option - Options

Options   -   Label axis - will scale the x and y
                                    axis in the appropriate units.   If
                                    Educational Electronics' sensors are
                                    being used then the scaling will be
                                    in the correct physical units.

                           -        Graticules - Toggles the graticule
                                    lines on the display.

2.2.5 Main Menu Option - Printer Dumps

Options   -   The user will be given the options of
                                    LARGE or SMALL graphics dumps.   LARGE
                                    is approximately the full width of an
                                    80 column printer and SMALL covers
                                    about half this width.

                                    Should no printer be attached to the
                                    computer or the printer is switched
                                    off, then a message 'No printer found'
                                    will be displayed briefly on the
                                    monitor screen.

At the bottom of the screen other choices are available without the need to press 'esc'.

Type 'E' for expand highlights the bottom left hand corner, this highlighted rectangle may be moved to any desired section, by pressing any of four arrow keys. Pressing 'S' allows the size of the highlighted rectangle to be altered. Once you have moved the highlight to the desired portion of the screen, press 'return' and that portion will be displayed.
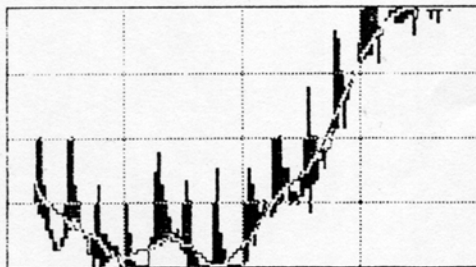
VOLTS
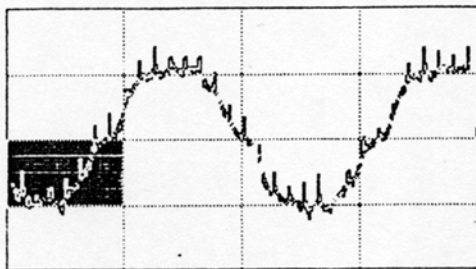
mSECS

←→ TO MOVE WINDOW

VOLTS

mSECS

While in the expanded mode the four arrow keys will allow the display to be scrolled.
To return to the full screen press 'N'.

Notes: 1. If you should inadvertently enter an option in error, you can return to the initial menu by pressing ESCAPE key.

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3.0 Having Problems.

Velanalysis III has been tested thoroughly and should give you trouble free use. However there are certain circumstances of usage which are beyond our control which may cause problems. This is most likely to be when sideways ROMS are fitted.

Velanalysis III looks to see which sideways ROMS are present and follows recommended methods to switch these ROMS out 'during initialisation. Most sideways ROMS will not effect Velanalysis III operation. However, if a sideways ROM is fitted which uses non recommended protocols, or protection from being switched off, it is possible that competition for RAM space will occur between the rogue ROM and Velanalysis III. This may manifest itself in unpredictable errors such as inability to self boot, corruption of data, or inability to load data from Vela.

If you have inexplicable problems we suggest you try Velanalysis III on a BBC which is as minimally upgraded as possible to ascertain whether the fault really lies in Velanalysis or the BBC.

Past experience has shown that apparent non-sensical data has usu-ally been attributable to hardware malfunctions such as user ports or incorrect data logging.
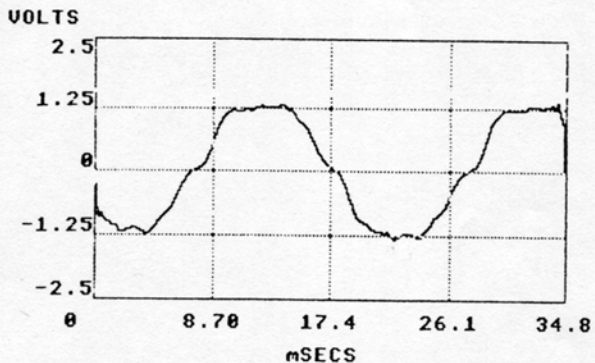
Finally, if you cannot resolve your problem please contact us and we will try to help.

Appendix 1

Examples of Screen dumps.
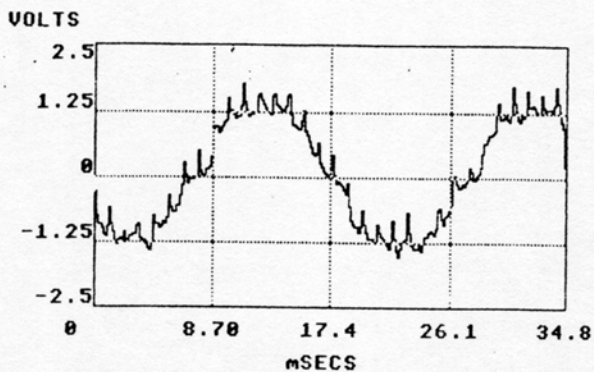
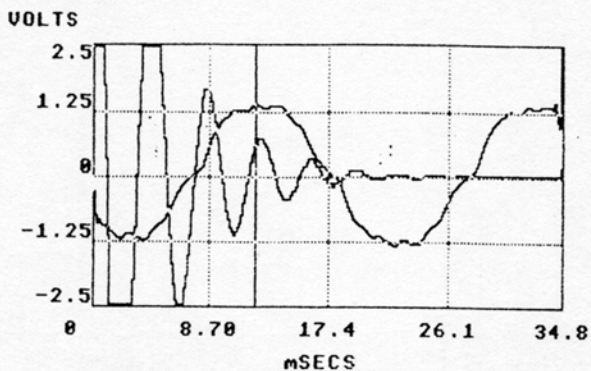A   A Sine Wave containing noise

B   Above sine wave after
       application of moving
       average

Buffer 1   Buffer 2   Buffer 3   Buffer 4
VOLTS   mVOLTS   VOLTS
0.5784   1.3627
mSECS   mSECS   mSECS
356   12.104

VOLTS

C   Sine wave with superimposed
     damped oscillation trace.
     NOTE: graticule line
     cursor and displayed value
     at cursor position.

Buffer 1   Buffer 2   Buffer 3   Buffer 4
VOLTS   VOLTS
0.7352   1.3627
mSECS   mSECS
364   12.376

VOLTS
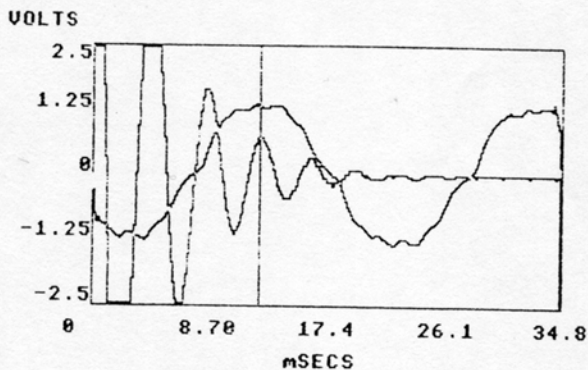
D   Similar to above but
     without the graticule lines.

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Appendix 2

This software is only suitable for use with EPSON compatible printers which have dot graphics capability.

NOTE: The software assumes that a printer with a parallel interface is attached to the computer.