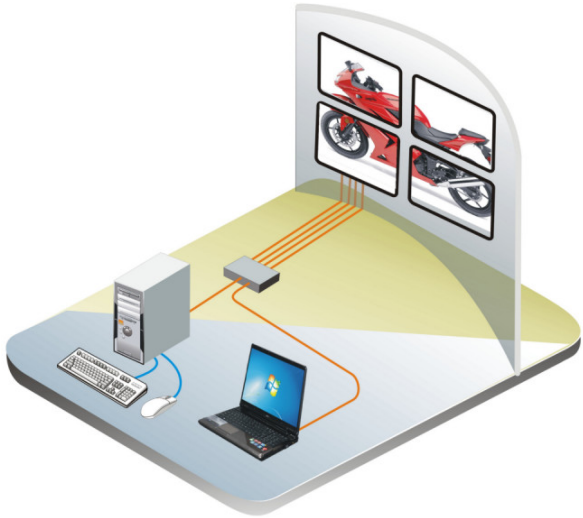
ROSE.COM

Installation and Operations Manual

P/N VWL-D122DDL



ROSE ELECTRONICS

10707 Stancliff Road
Houston, Texas 77099

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LIMITED WARRANTY

Rose Electronics® warrants the UltraVista™ Plus to be in good working order for one year from the date of purchase from Rose Electronics or an authorized dealer. Should this product fail to be in good working order at any time during this one-year warranty period, Rose Electronics will, at its option, repair or replace the Unit as set forth below. Repair parts and replacement units will be either reconditioned or new. All replaced parts become the property of Rose Electronics. This limited warranty does not include service to repair damage to the Unit resulting from accident, disaster, abuse, or unauthorized modification of the Unit, including static discharge and power surges.

Limited Warranty service may be obtained by delivering this unit during the one-year warranty period to Rose Electronics or an authorized repair center providing a proof of purchase date. If this Unit is delivered by mail, you agree to insure the Unit or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or its equivalent. You must call for a return authorization number first. Under no circumstances will a unit be accepted without a return authorization number. Contact an authorized repair center or Rose Electronics for further information.

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NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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Rose Electronics Part # MAN-UVPlus
Printed In the United States of America – Revision 1.1

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INTRODUCTION

Disclaimer

While every precaution has been taken in the preparation of this manual, the manufacturer assumes no responsibility for errors or omissions. Neither does the manufacturer assume any liability for damages resulting from the use of the information contained herein. The manufacturer reserves the right to change the specifications, functions, or circuitry of the product without notice.

The manufacturer cannot accept liability for damages due to misuse of the product or other circumstances outside the manufacturer's control. The manufacturer will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product.

System Introduction

Thank you for choosing the Rose Electronics® UltraVista™ Plus. The UltraVista Plus is the result of Rose Electronics commitment to providing state-of-the-art solutions for today's demanding workplace. The UltraVista Plus has proven to be a valuable investment for any business or office that has a need to display, manipulate, and control video on a multiple display array.

The UltraVista Plus video wall represents the latest in video displaying technology. The advanced design of the UltraVista Plus can display standard single-link or dual-link DVI signals from a video source and display all or a selected area of the input signal across four DVI or analog RGB monitors. The flexibility of controlling software allows for multiple UltraVista Plus units to be controlled from a single computer.

Product Registration

Take advantage of the following when you register your Rose Electronics products online at **www.rose.com/htm/warranty.htm:**

- Rose Standard Warranty *Plus...*
- Free Lifetime Firmware Updates
- Free Lifetime Technical Support
- 30 Day Money Back Guarantee
- Priority "First-in-Line" Status for Tech Support

About this manual

This manual covers the installation and operation of UltraVista Plus.

Features

- Single or dual link DVI input support
- Max output resolution 2048 x 2048
- Full bezel width and height correction
- Splits a single DVI input into four independent outputs
- Output monitors can be DVI or Analog RGB
- Each output monitor can display any selected area of the input image
- Auto-detection of input resolution and output monitor native resolution
- Default setting displays ¼ of the input signal on each output monitor in a 2x2 array.
- Each output monitor can display any rectangular section of the input video signal
- The graphical utility provides easy configuration for cropping, scaling, rotating, and gap compensation.
- Power, status, and input indicators
- The firmware detects when the input and output timings are set to identical frame rates and will automatically genlock the syncs.

Package contents

The package contents consist of the following:

- UltraVista main unit
- Documentation CD with configuration control software
- Power adapter and Power cord
- Rackmount kit
- Installation and operations manual

If the package contents are not correct, contact Rose Electronics or your reseller, so the problem can be quickly resolved.

Rose Electronics web site

Visit out web site at www.rose.com for additional information on other products that are designed for data center applications, classroom environments and other applications.

Models

Front View

Indicators
- Power
- Input
- Status

Rear View

Connectors
- Sync – For future enhancements
- USB – to control PC via USB A/B cable (supplied)
- Input – DVI-D
- Output (4) – DVI-I
- Power

Figure 1. Models

Installation

Figure 2 shows a typical installation. Be sure to install the provided USB drivers on the control computer before connecting it to the UltraVista Plus's USB port.

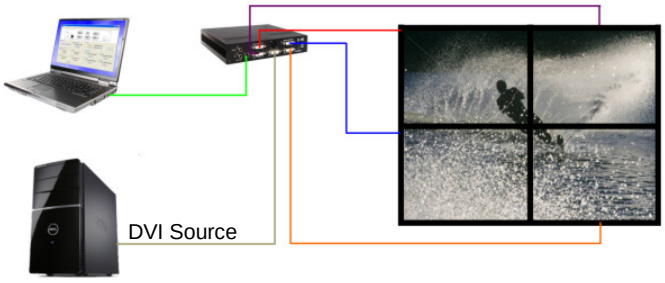


Figure 2. Typical Installation

Unit Installation

Installing the UltraVista Plus is a straight forward procedure. First:

- Make sure that the power supply for the DVI source is disconnected
- Connect a DVI cable from the DVI source to the DVI-D input connector on the rear panel of the UltraVista Plus
- Connect up to four displays to the DVI-I output connectors on the rear panel
- Connect the 5VDC power adapter to the UltraVista Plus power input jack and apply power to the unit
- Last, power up the DVI source

The Power LED on the front panel will illuminate to indicate that power has successfully been applied to the unit.

The UltraVista Plus has an internal processor that will continuously monitor the DVI input signal, and the input LED will be illuminated when a valid and stable input is detected.

If the Input LED is not illuminated, the UltraVista Plus cannot detect a valid DVI input source.

During operation, the UltraVista Plus is able to adjust its internal operation to maintain the programmed output proportions even when the input resolution changes.

Configuration

The UltraVista Plus stores a number of parameters to configure its operation. This allows it to operate stand alone in a very flexible manner. The configurations affect the input and output display modes as well as how the input image is displayed over multiple monitors.

The UltraVista Plus default configuration is:

- Input EDID Preferred Mode: 1920 x 1080 x 60Hz (SMPTE timings)
- Output monitor mode: Use Monitor Preferred Mode
Default:1920 x 1080 x 60Hz (SMPTE)
- Cropping Mode: 2x2 equal split (960x540)
No Rotation, No bezel compensation

These settings can be changed using the provided UltraVista Plus control application. This is executed from a computer connected to the USB port on the UltraVista Plus. The application can be run on any Windows® platform (see the Control Application section for additional information).

Configuring DVI Input resolution

Because the timings and resolution of the DVI input are set by the DVI source machine, the UltraVista Plus can only configure this indirectly by presenting a programmable “Preferred Mode” as part of its EDID (Extended Display Identification Data).

Most graphics cards and HDMI appliances automatically select the “Preferred Mode” resolution and timings presented by the UltraVista Plus EDID, but they may need to be forced to re-detect if the EDID contents are changed by the UltraVista Plus application. This would typically be via a hot-plug event caused by disconnecting and reconnecting the DVI input cable.

The configuration application will allow read-back of the resolution that is currently being detected, as well as the ability to read and write the internal EDID rom.

Monitor Outputs

The UltraVista Plus can be configured to read the corresponding EDID of each monitor that is connected and to drive out a signal that corresponds to the resolution, timings and mode (RGB or DVI) of the Preferred Mode. This is the factory default configuration.

Please note that when different monitors are attached to the four outputs, each may advertise a different Preferred Mode, therefore each output will be driven at a different mode.

Whenever the monitor EDID is used, the UltraVista Plus will calculate the internal scale factors to ensure that the monitor (at whatever resolution it is being driven) will still display the correct proportion of the input image.

If an EDID cannot be read (for example if the monitor cable does not support the DDC signals required), there is a default mode that can be programmed into the UltraVista Plus’s memory. This is factory configured to 1920x1080p.

In some cases it may be that the user requires a very specific output timing (for example when genlocking to the input) irrespective of the monitor EDIDs. In this case the UltraVista Plus can be configured to always output the mode that has been programmed as the default mode.

Selecting the Regions to Be Displayed

Each output of the UltraVista Plus can take its display data from any arbitrary rectangular region of the captured input image. The factory default for these cropping rectangles configures the four monitors to display a quarter of the input as a 2x2 array, and these proportions are maintained across different input resolutions.

For a 1080p input, this means that 960x540 pixels from the input image would be up-scaled by a factor of 2 in each direction if the selected output resolution was 1080p.

However if the input resolution were to change to 1600x1200, then for the same output monitor the UltraVista Plus would upscale from an 800x600 region and would reprogram its scale factors to 2.4 horizontally and 1.8 vertically to support the same 1080p monitor.

The cropping regions can be assigned arbitrarily and can overlap, the only restriction being that the resulting scale factor must be greater than 1.0 (ie 1:1 or up-scaled) in either direction. As an example it is possible to use the UltraVista Plus to output four identical copies of the input signal (providing the resulting output timings remain within the capabilities of the single-link DVI outputs).

The regions of the input image to be displayed on a given output monitor can be programmed via USB by using the UltraVista Plus configuration application.

In order to support portrait orientation of monitors, the source data can be rotated by 90º, 180º or 270º as it is output to the monitor.

UltraVista Plus Control Application

Application Installation

Note: Do not connect the UltraVista Plus to the controlling computer's USB port until the driver installation is complete.

Locate the Install folder on the supplied CD, run the install.exe program, and follow the installation wizard instructions. During installation a warning message is displayed stating that the driver does not have Windows® Logo accreditation. Select Continue Anyway to complete the installation.

The UltraVista Plus can now be connected to a suitable USB 1.0 or 2.0 port using the cable supplied. At this point the hardware will be detected by Windows as an UltraVista Plus, and a New Hardware wizard is displayed. Allow the wizard to search, and click on the recommended option to enable the previously installed driver to be associated with the new hardware.

Press Continue Anyway to accept the driver.

Running the Control Application

To open the Control Application select Start/All Programs/UltraVista Plus/UltraVista Plus.

The application will search for an UltraVista Plus connected to your computer and display the status of the first unit detected. If more than one UltraVista Plus is connected, a list of all available UltraVista Plus's can be found in the File menu.

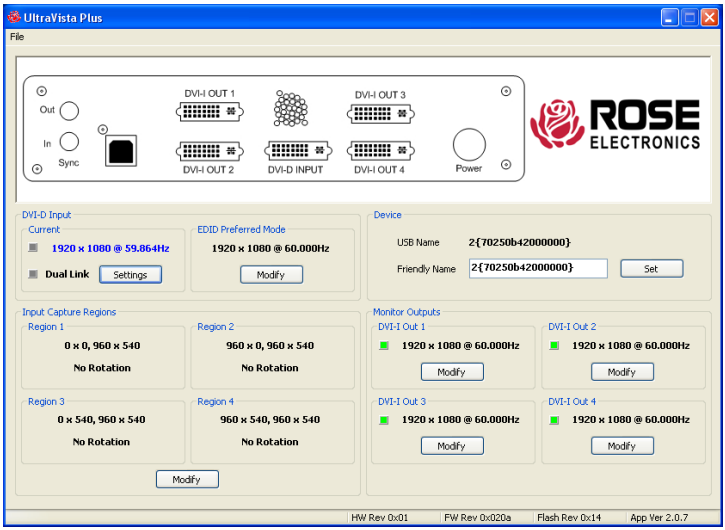


Figure 3. Control Application

The main control application window is divided into the following groups:

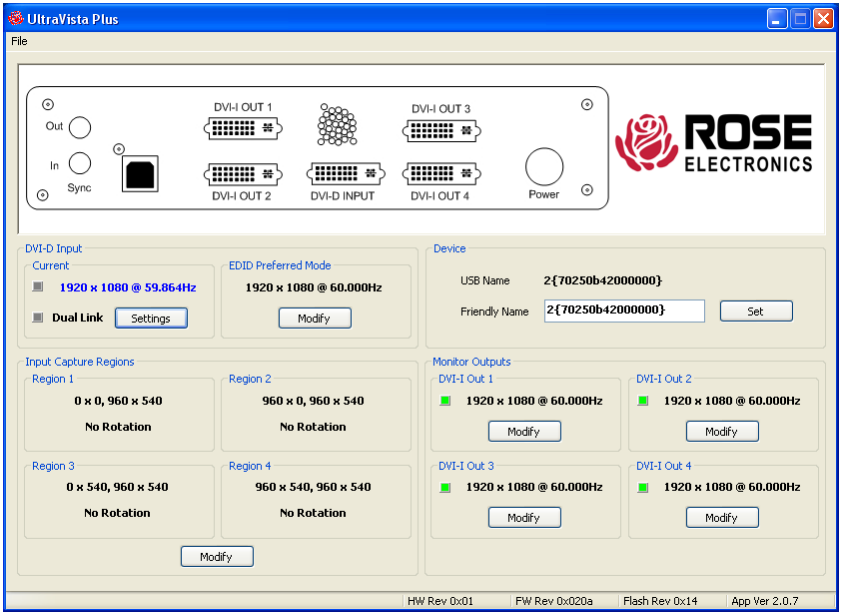
- Connection Diagram
- Device
- DVI-D Input
- Input capture region
- Monitor Outputs

Connection diagram

The connection diagram shows a view of the rear panel of the UltraVista Plus.

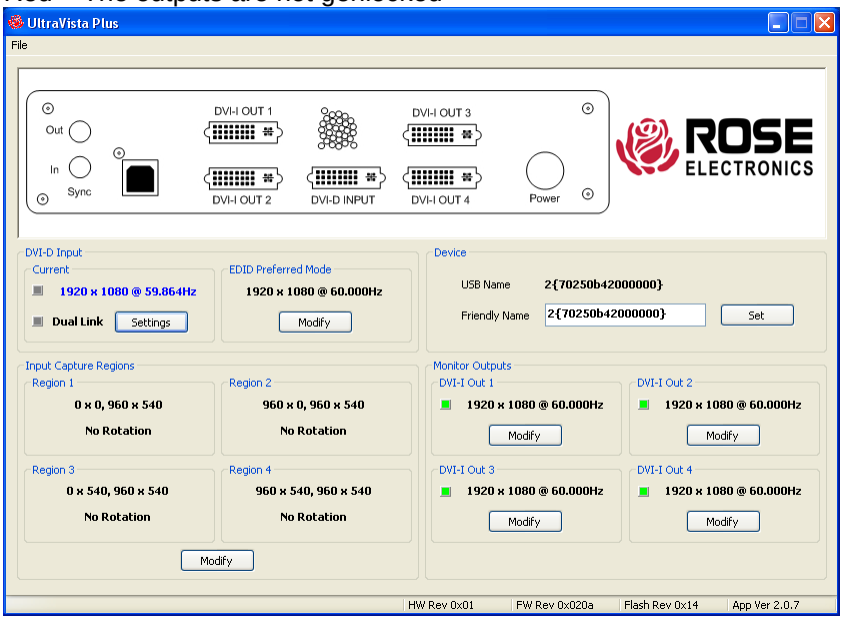
Device section

The unique USB device name that is connected is displayed in the Device group. It is possible to associate a more user friendly name such as “First Four Outputs”. The friendly name is stored in non-volatile storage on the UltraVista Plus and can to help identify the device during future configuration sessions. Specific devices connected to your PC can be selected using the Select Device command on the File Menu. The UltraVista Plus’s will be listed by the USB Device or by a previously configured friendly name.

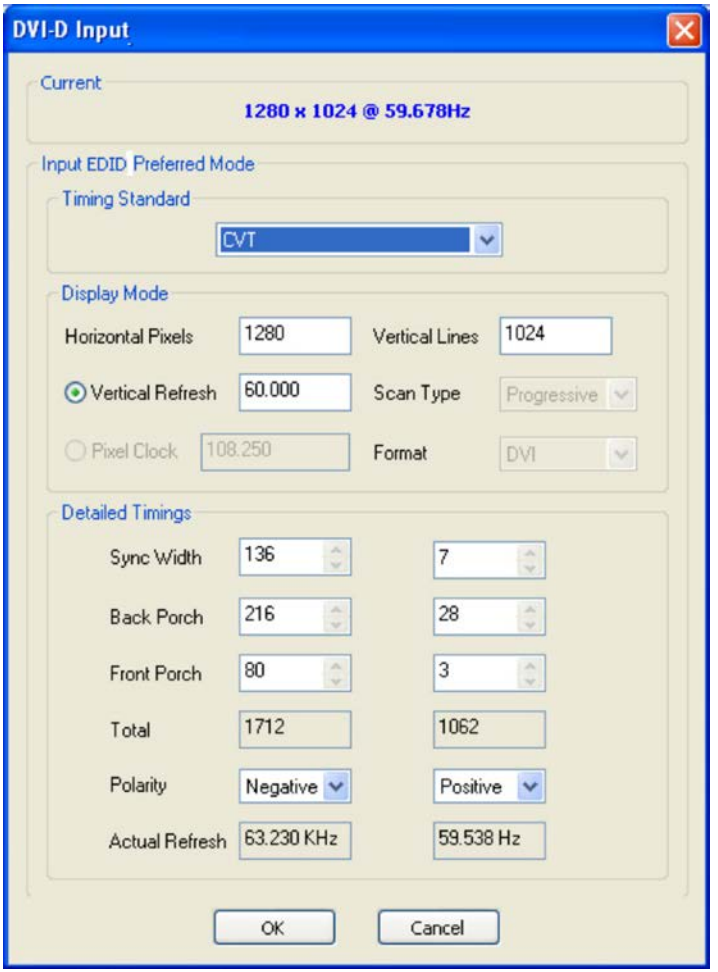


DVI-D Input section

The DVI-D Input group displays the current DVI mode that is being captured (if any) and the preferred mode that has been programmed into the UltraVista Plus's EDID. Use the Modify button to update the EDID. The small square to the left of the current input resolution indicates whether the UltraVista Plus has genlocked to the input source.
Green – The outputs are genlocked to the input dot clock and vertical sync
Red – The outputs are not genlocked



To change the timings of the input EDID click on the Modify button. The following dialog window will be displayed. From this window you can modify the input EDID preferred mode timing standard, the display mode, and detailed timing.



The DVI-D Input dialog displays the resolution of the current mode for reference and allows the timings of the EDID preferred mode to be edited. The dialog supports standard timing formulae such as:

- VESA CVT
- CVT Reduced Blanking
- SMPTE (for HD modes)
- VESA GTF
- Custom

Selecting Auto from the drop down list will typically default to the VESA CVT algorithm, which best matches typical standard VESA output modes. CVT Reduced Blanking is recommended to minimize dot clocks and maximize DVI cable lengths.

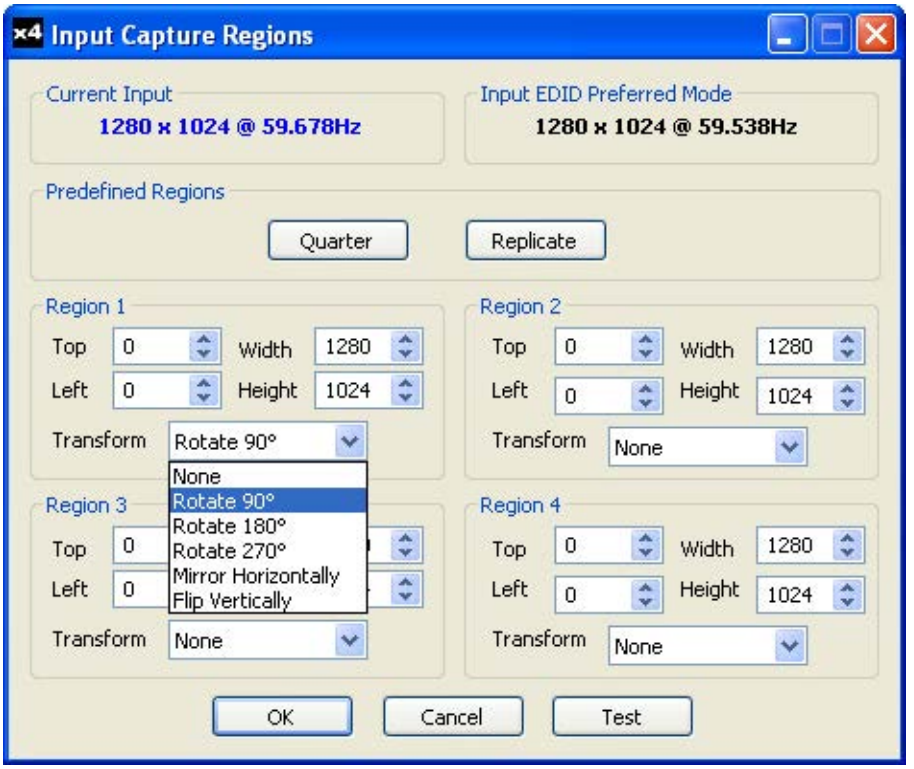
Selecting Custom allows the timing parameters to be edited. It should be noted that you will need to select between the use of Pixel Clock or Vertical Refresh, since these are mutually excusive parameters.
When editing is completed, clicking OK writes the preferred mode into the EDID but may not automatically affect the input mode that is being captured. It may be necessary to force the graphics device in the host machine to detect the new preferred mode. This can be done by selecting Detect on the Screen Resolutions dialog box (Windows® 7) or by disconnecting the graphics source from the UltraVista Plus and reconnecting.
All modifications to the input settings can be saved as a .vqs file, removing the requirement to input the same settings again. To save the settings select the Save… command in the File menu. To open a saved .vqs file select the Open… command.

Input Capture Regions

Each output of the UltraVista Plus can select a different region of the input source image. This dialog displays the settings of each region (region 1 corresponds to output 1 etc).

The numbers denote the top, left, width and height coordinates of the region that is to be displayed. Note, these are described in terms of the current active input resolution. If the input resolution changes, the capture region coordinates scale to the new input resolution in order to maintain the same proportions.

To modify any of these settings click on Modify to display the edit dialog.



Predefined Regions

For ease of use, there are preset buttons to select the two most popular configurations: Quarter or Replicate.

Quarter

The first monitor displays the top left hand quarter of the input image, the second monitor the top right, the third the bottom left etc. This mode of operation can be used to drive four monitors in a 2x2 arrangement from a single high resolution input.

Replicate

Each output displays the entire input image. The output monitors can be driven at the same resolution (with different timings, if necessary) or a higher resolution.

There are no restrictions (other than the resulting scale factor must be 1:1 or upscale) in the region settings, so it is possible to have regions overlapping, or to program in gaps, etc. Additionally each region can have a transform

such as rotation or flipping applied to it (after cropping) in order to support different output monitor orientations.
Please note that there may be instances where a setting stored in non-volatile memory which was valid when it was stored (i.e. the scale factors from input to output were 1:1 or greater) may subsequently require down-scaling if the resolution of the input increases. In this case the firmware will adjust the scaling factors to give a 1:1 crop of the input, centered on the original region. In order to signal that at least one output is no longer exactly honoring the programmed region setting, the front panel status light will not be illuminated.
All modifications to the Region settings can be save as a .vqs file, removing the requirement to input the same settings again. To save the settings select the Save… command in the File menu. To open a saved .vqs file select the Open… command.

Monitor Outputs

The Monitor Outputs group shows the actual resolution and refresh rate that each of the four UltraVista Plus outputs is currently providing. To see more information such as whether this is an analog RGB or DVI mode, if it is the monitor EDID preferred mode or a default mode programmed into the UltraVista Plus, along with detailed timing information, click on the Modify button for the required output.
The genlock status is indicated by the small colored squares:

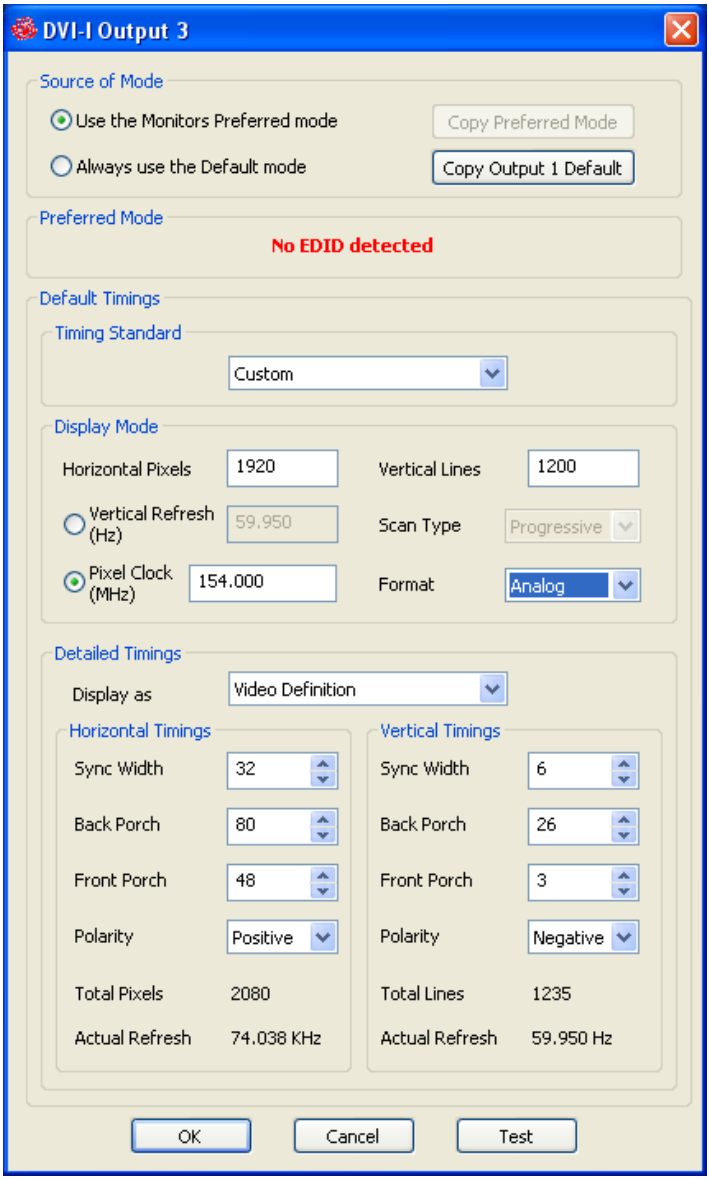
Green

The outputs are genlocked to a common reference clock, and the Vsync of the first monitor. If the Input genlock light is green (see above), then the reference clock is taken from the input DVI source, and the system is fully genlocked to this source. If the input genlock indicator is red, then the outputs are genlocked together, but are not related to the input sync.

Red

The outputs are NOT genlocked

Individual monitor outputs can be configured by clicking on the corresponding Modify button. This will bring up a timing dialog similar to that of the input timings. This dialog is shown below.



The source of mode selection controls whether the UltraVista Plus output should take its timing values and resolution from the preferred mode of the monitor that is connected, or use its internally programmed ‘default’ mode. Please note that only the internal default timings can be edited in this dialog.

If Use the Monitors Preferred Mode is selected, but no valid EDID can be read from the attached monitor, then the UltraVista Plus firmware will program the output to use the default mode timings.
The rest of the dialog is identical to that for setting the Input timings, with the exception that for the output monitors it is possible to select Analog RGB ("VGA") output as well as DVI.
All modifications to the Output settings can be save as a .vqs file, removing the requirement to input the same settings again. To save the settings select the Save… command in the File menu. To open a saved .vqs file select the Open… command.
Finally there is a Test button which should be used when defining a default mode that you are not sure the attached monitor can support. In test mode, the output timings are programmed, but they are not saved to non-volatile memory on the UltraVista Plus until the OK button is pressed to accept the mode.

Product Safety

The UltraVista Plus has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the UltraVista Plus should be used with care. To protect yourself from possible injury and to minimize the risk of damage to the Unit, read and follow these safety instructions.

- Follow all instructions and warnings marked on this Unit.
- Except where explained in this manual, do not attempt to service this Unit yourself.
- Do not use this unit near water.
- Assure that the placement of this Unit is on a stable surface or rack mounted.
- Provide proper ventilation and air circulation.
- Keep power cord and connection cables clear of obstructions that might cause damage to them.
- Use only power cords, power adapter and connection cables designed for this Unit.
- Use only a grounded (three-wire) electrical outlet.
- Use only the power adapter provided with the Unit.
- Keep objects that might damage this Unit and liquids that may spill, clear from this Unit. Liquids and foreign objects might come in contact with voltage points that could create a risk of fire or electrical shock.
- Operate this Unit only when the cover is in place.
- Do not use liquid or aerosol cleaners to clean this Unit. Always unplug this Unit from its electrical outlet before cleaning.
- Unplug this Unit from the electrical outlet and refer servicing to a qualified service center if any of the following conditions occur:
  - The power cord or connection cables are damaged or frayed.
  - The Unit has been exposed to any liquids.
  - The Unit does not operate normally when all operating instructions have been followed.
  - The Unit has been dropped or the case has been damaged.
  - The Unit exhibits a distinct change in performance, indicating a need for service.

Service Information

Maintenance and Repair

This Unit does not contain any internal user-serviceable parts. In the event a Unit needs repair or maintenance, you must first obtain a Return Authorization (RA) number from Rose Electronics or an authorized repair center. This Return Authorization number must appear on the outside of the shipping container.

See Limited Warranty for more information.

When returning a Unit, it should be double-packed in the original container or equivalent, insured and shipped to:

Rose Electronics
Attn: RA_____
10707 Stancliff Road
Houston, Texas 77099 USA

Technical Support

If you are experiencing problems, or need assistance in setting up, configuring or operating your UltraVista Plus unit, consult the appropriate sections of this manual. If, however, you require additional information or assistance, please contact the Rose Electronics Technical Support Department at:

Phone: (281) 933-7673
E-Mail: TechSupport@rose.com
Web: www.rose.com

Technical Support hours are from: 8:00 am to 6:00 pm CST (USA), Monday through Friday.

Please report any malfunctions in the operation of this Unit or any discrepancies in this manual to the Rose Electronics Technical Support Department.

Appendix A – Specifications

Part Number		P/N VWL-D122DDL
Resolution		2048 x 2048 (up to 2.5Mpixel)
Single Link DVI or Analog RGB output		Up to 165 Mpixels/s
Dual Link DVI capture		Up to 330 Mpixels/s
USB 2.0		Full speed (12Mbits/s)
Power		100-240VAC adapter to 5VDC, 11W
Operating Temperature		32° - 96°F (0° - 35°C)
Up Scaling		64x original surface area
Input surface		4k x 4k Max
MTBF		50,000 hrs.
Dimensions	Width Depth Height	9.25” (235mm) 6.90” (175mm) 1.75” (44mm)

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Server Management Solutions

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