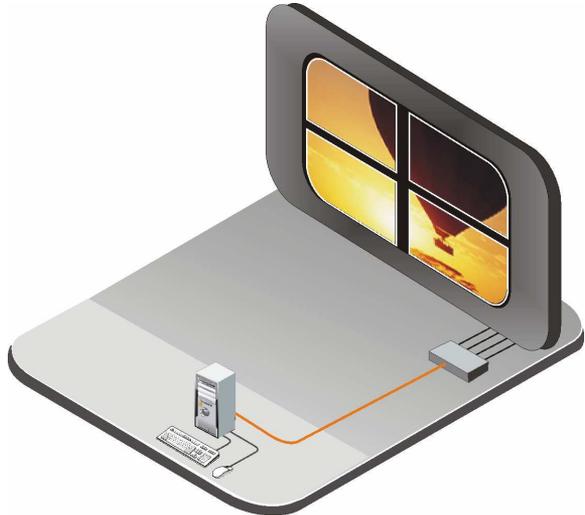


INSTALLATION AND OPERATIONS MANUAL

ROSE.COM



LIMITED WARRANTY

Rose Electronics warrants the UltraVista LC 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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HAZARDOUS MATERIAL DISCLOSURE

The details provided below are to ensure that the product is compliant with the Peoples Republic of China RoHS standards. The table below acknowledges the presence of small quantities of certain materials in the product, and is applicable to China RoHS only.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printer Circuit Boards	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O
<p>O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006</p> <p>X: This toxic or hazardous substance is contained in at least one of the homogeneous material for this part is above the limit requirement in SJ/T11363-2006</p>						

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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.

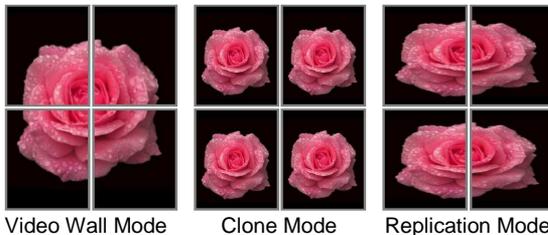
The manufacturer cannot accept liability for damages due to misuse of the product or other circumstances outside the manufacturer's control. The manufacturer will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product.

System Introduction

The UltraVista LC is the product of choice for those who have the need to produce a high quality, inexpensive video wall. Models are available for a 1x4, 2x2, and 3x3 video wall. The 2x2 and 3x3 models can be expanded to produce a 4x4 or a 9x9 video array.

Connect the UltraVista LC directly to a laptop or desktop computer with a single DVI cable and instantly the hi-definition computer image is displayed on a large video wall. No extra set-up is required because the UltraVista LC automatically detects the correct settings.

The UltraVista LC can be automatically configured to produce three output modes; video wall mode, clone mode, and replication mode. These modes are automatically configured based on the input resolution received from the video source. The video wall mode accurately splits the input image over the display array. The clone mode displays the same image on all monitors. The replication mode shows the same image on each row of monitors.



Video Wall Mode

Clone Mode

Replication Mode

The UltraVista LC requires a high-resolution digital video input signal. This input is split directly over the display array with no image scaling or adjustments needed.

Configuring the UltraVista LC can be done from a built-in OSD menu system, a computer connected to the RS-232 serial port or using the remote control unit.

Features

- Supports Dual link DVI video input
- Single-link DVI video outputs
- Models:
 - 2x2 – 1 dual-link DVI input / 4 single-link DVI outputs
 - 3x3 – 1 dual-link input / 9 single-link DVI outputs
 - 1x4 – 1 dual-link DVI input / 4 single-link DVI outputs (monitors orientated horizontally)
- Supports video input resolutions up to 3840 x 2400
- Output resolutions up to 1920 x 1200
- Depending on input resolution, the video output mode is automatically set based on the input resolution (2x2 and 3x3 models - Clone mode, Split mode, Video wall mode) (1x4 model – 3x1 mode or 4x1 mode)
- Easy adjustments for bezel compensation
- Expand a 2x2 model easily to a 4x4 display, a 3x3 model to a 6x6 or a 9x9 display array.
- Configure the 1x4 model with 4 monitors arranged horizontally
- Adjustments and control can be performed using a remote control or serial commands from a connected computer
- Compatible with most monitor that supports DVI input. Displays can be LCD, HD Plasma, DLP, Projectors, or others.

Package Contents

The package contents consist of the following:

- The UltraVista LC unit
- Dual-Link DVI cable
- Power cord
- Power adapter
- Remote control
- Mounting brackets and hardware
- Installation and operations manual CD
- Quick Start Guide

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

Compatibility

A consumer grade graphic card with high-resolution dual link DVI output is required. The graphic card used must meet or exceed the specifications of the following cards:

nVIDA GeForce 9 series – 9800GTX, 9600 GT, 9500GT, 9400GT, etc.

nVIDA GeForce 8 series – 8800GT, 8600GT, 8400GT, 8400GS, etc.

ATI Radeon HD 3800 Series – 3870, 3850, 3650, 3470, etc.

ATI Radeon HD 4600 Series – 4670, 4650, etc.

The UltraVista LC is compatible with almost any monitor that supports a DVI input. (LCD, HD Plasma, DLP, or projector)

Rose Electronics web site

Visit our web site at www.rose.com for additional information on UltraVista LC and other products offered by Rose Electronics that are designed for data center applications, classroom environments, and many other access and switching applications.

Product Registration

Take advantage of the following when you register your Rose Electronics products online at <http://www.rose.com/html/online-registrationform.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

System Overview

The UltraVista LC system will take a single high-resolution digital video input and split it correctly over the output display array with no image scaling or adjustments. The UltraVista LC can be controlled from either a computer connected directly to the RS232 port on the unit or using the included remote control.

MODELS



UltraVista LC 1x4 model



UltraVista LC 2x2 model

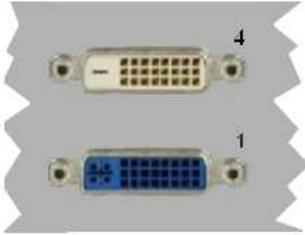


UltraVista LC 3x3 model

Front Panel Indicators / Controls

	<p>Video Out Indicators LEDs indicate which DVI output port has a video signal.</p>
	<p>OSD menu controls (See OSD section for Menu and menu selections)</p>
	<p>Video In Indicator LED indicates a valid input video signal is present</p>
	<p>Power Indicator LED indicates that power is applied to the unit</p>
	<p>Menu select button Displays the OSD, Selects items and sets new item values</p>
	<p>Up arrow button Moves the selection up</p>
	<p>Down arrow button Moves the selection down</p>
	<p>Left arrow button Moves the selection left</p>
	<p>Right arrow button Moves the selection right</p>
	<p>Enter button Selects the highlighted selection</p>

Rear Panel Connectors

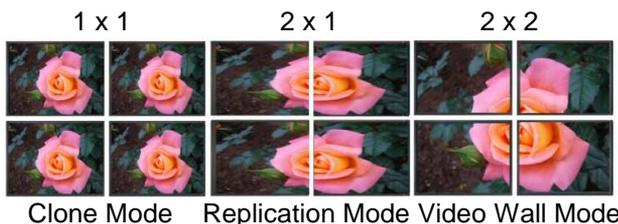
 <p>The image shows a section of a rear panel with several connectors. From left to right: a power on/off switch, a DC IN jack, a Sync In jack, a Sync Out jack, and a Serial DB9F connector. Labels 'DC IN', 'Sync In', and 'Sync Out' are visible above their respective jacks.</p>	<p>Power On / Off switch DC IN – 12V DC Sync In / Sync Out – Connects from and to additional units Serial DB9F connector – Connects to an external computer's serial port for external configuration and control.</p>
 <p>The image shows two DVI connectors. The top one is a DVI-D video out connector, labeled '4'. The bottom one is a DVI-I video out connector, labeled '1'.</p>	<p>TOP – DVI-D video out connector BOTTOM – DVI-I video out connector</p> <p>NOTE: DVI-I connector supports both digital and analog signals.</p>
 <p>The image shows a DVI IN connector, labeled 'DVI IN'.</p>	<p>DVI-D video in connector</p>

INSTALLATION

UltraVista LC Installation

Installation of the UltraVista LC is an easy process. The installation consists of installing the LCD displays, mounting the UltraVista LC unit, connecting all of the cables, adjusting the output resolution settings, and adjusting the bezel to align the images.

The 2x2 unit's video output mode is determined by the input resolution of the video source. The 2x2 model can be set-up to display three modes. The 1x1, or clone mode displays the full image on each output monitor. The 2x1, or replication mode displays the input image on across each row of monitors. The 2x2, or video wall mode displays the input image across all monitors.



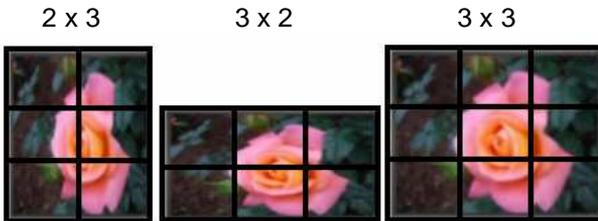
These three modes are determined by the input resolution of the video source as shown in the below table.

Mode	Input Resolution	Output Resolution	Vertical Hz	Horizontal Hz	Monitor Ratio
1 x 1	1024x768	1024x768	60	48.36	4:3
2 x 1	2560x1024	1280x1024	60	63.98	5:4
	3840x1080	1920x1080	50	56.25	16:9
	3840x1200	1920x1200	50	61.75	16:10
2 x 2	2048x1536	1024x768	60	48.36	4:3
	2560x2048	1280x1024	60	63.98	5:4
	2560x1440	1280x720	66	49.37	16:9
	2560x1600	1280x800	58	48.2	16:10
	2720x1536	1360x768	57	45.32	16:9
	3840x2880	1920x1440	40	60	Master to 3x3*
	3840x2160	1920x1080	50	56.25	16:9
	3840x2400	1920x1200	50	61.75	16:10
	2560x1920	1280x960	68	65.28	Master to 2x2*
	1280x960	640x480	72	36	Slave to 2x2**
	3392x1920	1696x960	58	55.58	Master to 2x2*
1696x960	848x480	54	27.92	Slave to 2x2**	

* Master to = setting for output to a 3x3 or 2x2 slave input

** Slave to = setting for input from a 2x2 unit

The 3x3 unit's video output mode is also determined by the input resolution of the video source. The 3x3 model can be set-up to display three modes, the 2 x 3 mode, the 3 x 2 mode, and the 3 x 3 mode. All three modes display the full image across all monitors.



The three modes are determined by the input resolution of the video source as shown in the below table.

Mode	Input Resolution	Output Resolution	Vertical Hz	Horizontal Hz	Monitor Ratio
2 x 3	2048x2304	1024x768	60	48.36	4:3
	2560x2400	1280x800	58	48.2	16:10
	2560x3072	1280x1024	60	63.98	5:4
	2720x2304	1360x768	57	45.32	16:9
3 x 2	3072x1536	1024x768	60	48.36	4:3
	3840x1600	1280x800	58	48.2	16:10
	3840x2048	1280x1024	60	63.98	5:4
	4080x1536	1360x768	57	45.32	16:9
3 x 3	3072x2304	1024x768	60	48.36	4:3
	3840x2160	1280x720	66	49.37	16:9
	3840x2400	1280x800	58	48.2	16:10
	3840x3072	1280x1024	60	63.98	5:4
	4080x2304	1360x768	57	45.32	16:9
	1920x1440	640x480	72	36	Slave to 2x2**
	3840x2880	1280x960	68	65.28	Master to 2x2*

* Master to = setting for output to a 3x3 or 2x2 slave input

** Slave to = setting for input from a 2x2 unit

Determine the type of video wall needed based on the UltraVista LC unit and set the video source resolution to one listed. If you have a 3x3 unit and are setting up a 3 x 2 video wall, set the input resolution to one listed for the 3 x 2 mode. See Attachment C for examples of various video wall configurations (2 x 3, 3 x 2, etc).

Installing the LCD Displays

Mount the LCD monitors as shown in figure 1, 2, 3 and 4. All displays should be identical in size and resolution capabilities. When mounting the displays, keep the horizontal and vertical gaps between displays consistent. (See attachment C for optional panel mounting configurations)



Figure 1. 2 x 2 Installation

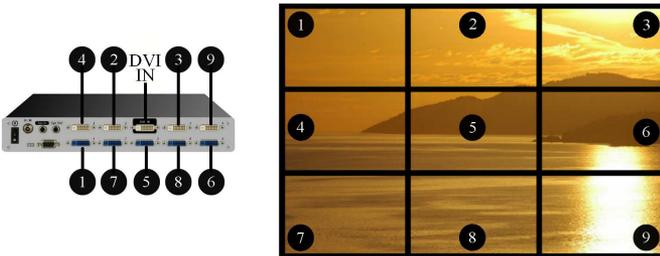


Figure 2. 3 x 3 Installation

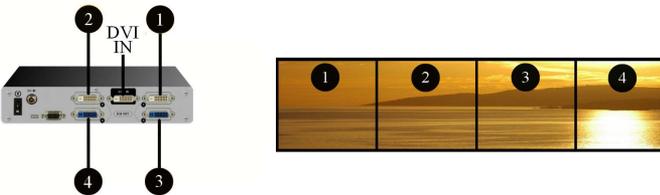


Figure 3. 1 x 4 Installation

Bezel compensation value calculation

When all the displays have been mounted, measure the bezel width and height, and the viewable width and height as shown in figure 4. These values will be entered into the OSD to set the gap compensation which will produce a smooth transition from one display to the next.

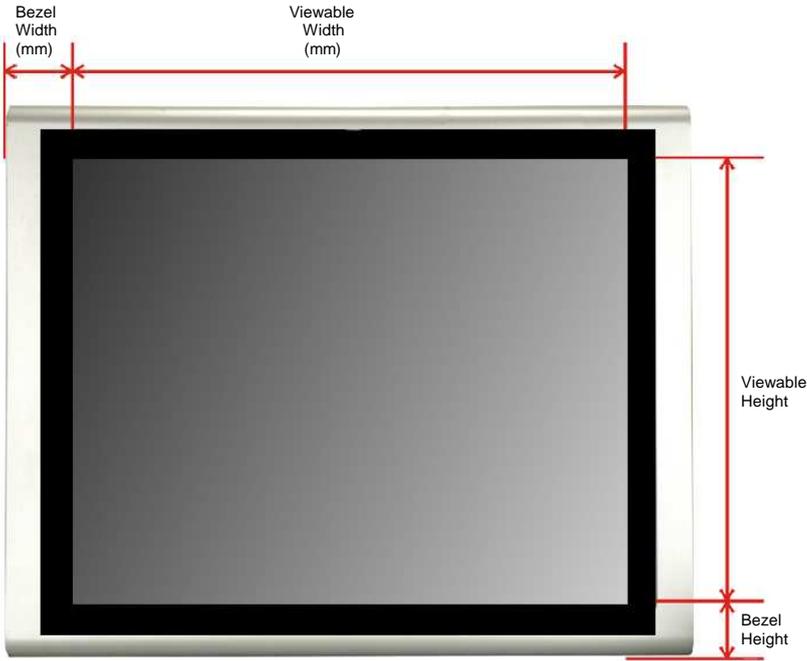


Figure 4. Bezel calculation

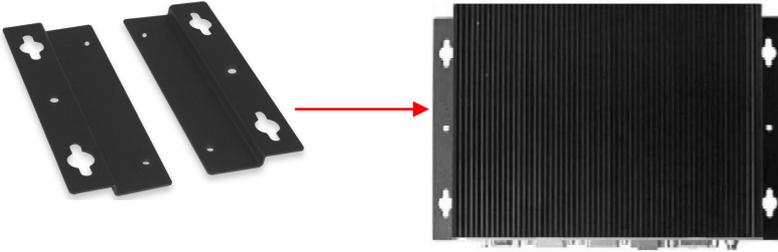
Calculate the values of “X” and “Y” to enter into the OSD as shown below. (See the OSD section for instructions)

$$\text{“X” value} = \frac{\text{Bezel Width (mm)}}{\text{Viewable Width (mm)}} \times \frac{\text{Viewable Width (mm)}}{4}$$

$$\text{“Y” value} = \frac{\text{Bezel Height (mm)}}{\text{Viewable Height (mm)}} \times \frac{\text{Viewable Height (mm)}}{4}$$

Mounting the UltraVista LC unit

The UltraView LC unit can be placed on a desk or mounted on a horizontal or vertical surface using the included mounting brackets. To mount the unit using the mounting brackets, remove the four rubber feet and secure the mounting brackets to the unit using the same holes and screws as shown below.



The installation location must be:

- Centrally located so all cables can connect to the unit*
- Out of direct sunlight
- No items placed on top of the unit
- On a firm surface or secured with the mounting brackets
- Away from any moisture or liquids
- Observe proper cable strain relief techniques

* If extended distances are needed from the UltraVista LC to the video source or to the display monitors, Rose Electronics' video extender line can extend this distance up to 400 feet using CATx cabling or 6 miles over fiber cabling.

Connecting the cable

Attach the provided DVI video cable from the UltraVista LC DVI input connector to the DVI video source. If the video source is VGA, a VGA to DVI converter must be used.

Each monitor connects directly to the corresponding DVI connector on the UltraVista LC's rear panel. Refer to Figure 1, 2, and 3 for monitor numbering.

Connect a DB-9MF serial cable to the DB9F serial connector on the UltraVista LC rear panel and to the DB-9M serial connector on a computer that will be used to send serial commands to the unit. See Figure 5 for an example of the cable installation and the RS232 section for instructions on sending serial commands to the unit.

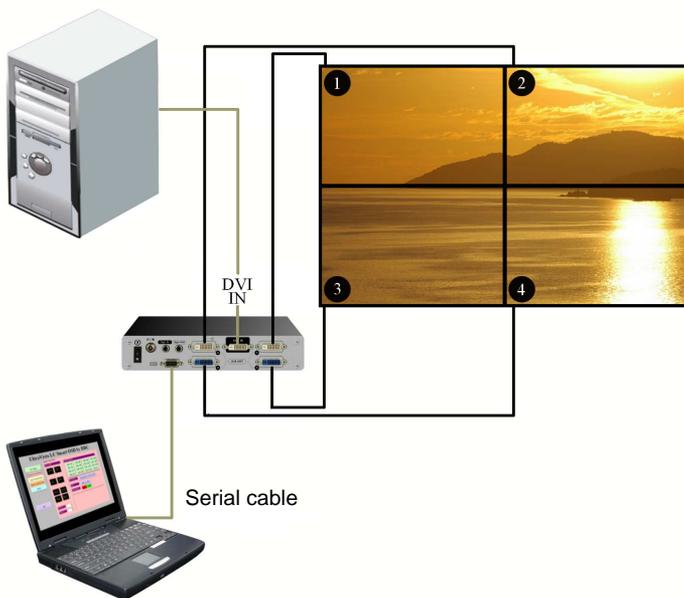


Figure 5. Serial Connection

All models install and configure in the same manor.

- Connect the DVI video source to the unit
- Connect each display monitor to the unit
- Connect a serial cable from the unit to a controlling computer

Using the built-in OSD features

To invoke the built-in OSD, press the MENU button on the front panel. The OSD will display on the monitor connected to the DVI output port #1.

(Note: All cable connections and power must be applied)



OSD Menu Structure

To reset the UltraVista LC to factory defaults, Press the “UP”, “Down”, and “Enter” buttons simultaneously until the “Reset to Mfg Default” message appears on the monitor connected to DVI output connector #1.



RESET
TO MFG
DEFAULT

Table 1 below shows the OSD menu structure.

Menu	Options	Description
Mask Control	MASK	Toggles the mask function ON / OFF
	X	Sets the horizontal mask value*
	Y	Sets the vertical mask value*
Link Control (2x2 and 3x3 only)	LINK	Toggles the link between the master video unit's mask value and the slave's value
	Scan	Toggles the scan function ON / OFF for detecting the attached slave units
Slave Mask Setting (2x2 and 3x3 only)	DVI	Displays DVI output settings with link on Displays individual settings with link off
	X	Sets the horizontal mask value
	Y	Sets the vertical mask value
Settings	OUT	Sets the output resolution
	MODE	Sets the output mode
Warning	Change Setting	Warning that the output resolution
Information	OUT	Displays the Units output resolution
	IN	Displays the Units input resolution
Slave Output Resolution (2x2 and 3x3 only)	DS	
	H	Slave's horizontal output resolution
	V	Slave's vertical output resolution
Sync and Power	SYNC	
	Power	Turns the power on and off
Version Information	FPGA	FPGA chip version number
	CPLD	CPLD chip version number
	FW	Firmware version number
Model Information	Name	Displays the model name
	SN	Displays the model serial number

* See page 8 for “X” and “Y” value calculations

Table 1. OSD Menu Structure

To navigate within the OSD system, first press the menu button on the front panel. The Mask Control window will display. Use the up or down arrow buttons to select (Highlight) an item (MASK, X, OR Y). Once selected, use the left or right arrow buttons to change the item value. When the correct values are set, press the Enter button to save the new values.

With no item within the Mask Control window or any other displayed menu selected (No item Highlighted) pressing the left or right arrow buttons will advance to the next or previous menu window.

Example: Pressing the Menu button displays the Mask Control window. With no item selected, pressing the right arrow button will display the Link Control window, press the right arrow button again and the Slave Mask Setting window will display.

Following are examples and descriptions of each menu item.

Mask Control

The mask control menu compensates for the gaps between the monitors.

		Selection	Description
MASK	ON	MASK	Toggles the Mask function ON or OFF
X	7	X	Adjusts left to right gap compensation (See Figure 4 for calculating X)
Y	10	Y	Adjusts top to bottom gap compensation (See Figure 4 for calculating Y)

Link Control

		Link control enables (ON) or disables (OFF) the master unit to automatically adjust the mask settings of the attached slave units.
LINK	OFF	
SCAN	OFF	Scan setting detects the attached slave units

Slave Mask Setting

 <p>DVI 1 - 4</p> <p>/X 3</p> <p>/Y 6</p>	<p>Mask Link = ON</p> <p>All slave units have the same settings</p>
 <p>DVI 1</p> <p>/X 3</p> <p>/Y 6</p>	<p>Mask Link = OFF</p> <p>DVI 1 = settings for unit #1 DVI 2 = settings for unit #2 DVI 3 = settings for unit #3 DVI 4 = settings for unit #4</p> <p>/X displays the horizontal bezel setting /Y displays the vertical bezel setting</p>

Settings

 <p>SETTING</p> <p>OUT : 1280 * 1024</p> <p>Mode : 1x1/1x2</p>	<p>OUT = Output resolution from the UltraVista LC</p>
 <p>SETTING</p> <p>OUT : 1024 * 768</p> <p>Mode : 2 x 2</p>	<p>MODE = Mode setting of the UltraVista LC</p> <p>VW = 2x2 mode on the UltraVista LC 2x2 unit S = 2x1 mode on the UltraVista LC 2x2 unit C = 1x1 mode on the UltraVista LC 2x2 unit</p> <p>3x3 = 3x3 mode on the UltraVista LC 3x3 unit 2x3 = 2x3 mode on the UltraVista LC 3x3 unit 3x2 = 3x2 mode on the UltraVista LC 3x3 unit</p>

Warning

 <p>WARNING</p> <p>Change Resolution</p> <p>To : 2720 * 2304</p>	<p>The warning message indicates that the output resolution on the computer should be adjusted to the resolution value shown.</p>
---	---

Information

 <p>INFORMATION</p> <p>OUT : No signal</p> <p>IN : No signal</p>	<p>The information menu shows the current input and output resolutions.</p>
--	---

Slave Output Resolution

 <p>/ DS 1</p> <p>H : 1360</p> <p>V : 768</p>	<p>Shows the current slave output resolution</p> <p>/ DS x = slave setting for designated unit (1)</p> <p>H = horizontal resolution for the designated unit</p> <p>V = vertical resolution for the designated unit</p>
--	--

Sync and Power

 <p>SYNC : OFF</p> <p>Power: ON</p>	<p>SYNC = for debugging</p> <p>Power = Turns unit power OFF</p>
--	---

Firmware Information

 The OSD screen for Firmware Information has a blue background. At the top, there are four icons: a square with a circle, a square with a double arrow, a red circle with a white 'f', and a square with a white 'M'. Below the icons, the text reads: 'FPGA : 0 1 1 0', 'CPLD : 0 1 0 0', and 'FW : 1. 1'.	<p>FPGA = Current version of the FPGA chip</p> <p>CPLD = Current version of the CPLD chip</p> <p>FW = Current UltraVista LC firmware version</p>
---	--

Serial Number

 The OSD screen for Serial Number has a blue background. At the top, there are four icons: a square with a circle, a square with a double arrow, a square with a white 'i', and a square with a white 'M'. Below the icons, the text reads: 'VWB122A' and 'SN :'. There is a large blank space below 'SN :', indicating the serial number is not yet displayed.	<p>Displays the model name and serial number</p>
---	--

Remote controller

All UltraVista LC models are supplied with a remote control. The remote control provides the same functions as the front panel push-buttons.



- Power: Turns the UltraVista LC unit on or off
- Menu: Displays the OSD menu on monitor #1, selects items, and sets new values
- Left: Moves the selection left
- Right: Moves the selection right
- Up: Moves the selection up
- Down: Moves the selection down
- Enter: Exits from any menu

Troubleshooting

No Image on One Monitor

- Check that the monitor is turned on
- Check that the power source for the monitor is turned on
- Check that the power source has the correct power rating
- Make sure the LCD panel power cables are securely fastened to the monitor and to the power source
- Check the monitor is connection

Safety

The UltraVista LC has been tested for conformance to safety regulations and requirements, and has been certified for international use. Like all electronic equipment, the UltraVista LC 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.

Provide proper ventilation and air circulation.

Keep connection cables clear of obstructions that might cause damage to them.

Use only power cords, power adapter and connection cables designed for this 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.

Do not use liquid or aerosol cleaners to clean this Unit. Always unplug this Unit from its electrical outlet before cleaning.

Unplug this Unit refer servicing to a qualified service center if any of the following conditions occur:

- The 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 QuadraVista, 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- General Specifications

Inputs DVI

Outputs – 4 x DVI / 9 x DVI

Dimensions 2x2 model – $\frac{W}{9.0} \frac{D}{7.1} \frac{H}{1.85}$ (Inches)
230 x 180 x 47 (mm)

3x3 model – 11.6 x 7.4 x 1.85 (Inches)
295 x 188 x 47 (mm)

Power Adapter Input 90 VAC to 264 VAC / 47 Hz to 63 Hz

Power Adapter Output 11.52 V to 12.48 V / 2.1 A / 25 W

Power Consumption 2x2 model - 10 W
3x3 model - 17 W

Safety and Emission CCC, CE, FCC

Temperature 0°C – 40°C

Appendix B – Part Numbers

Part Number	Description
VWL-B114D	1 x 4 Video wall display (Horizontal)
VWL-B122D	2 x 2 Video wall display
VWL-133D	3 x 3 Video wall display



Server Management



Solutions

10707 Stancliff Road
Phone: (281) 933-7673

Houston, Texas 77099
Internet: WWW.ROSE.COM