QuadraVista™

QUAD VIDEO KVM SWITCH

INSTALLATION AND OPERATIONS MANUAL

ROSE ELECTRONICS

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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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Declaration of Conformity

This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A digital device in accordance with the specifications of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Declaration of Conformity

This declaration is valid for the following product:

Equipment: Video, Keyboard, Mouse Switching System
Type: QuadraVista

Hereby the equipment is confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC) and the Council Directive relating to Low Voltage (73/23/EEC).
For the evaluation of the above mentioned Council Directive for Electromagnetic Compatibility and for Low Voltage, the following standards were consulted:

EN 55022 class A:	1998 + Corrigendum: 2001 + A1:2000 (Emission)
EN 61000-3-2:	2000 (Harmonic current emissions)
EN 61000-3-3:	1995 + Corrigendum: 1997 + A1:2001 (Flicker)
EN 61000-6-2:	2001 (Immunity)
EN 61000-4-2:	1995 + A1:1998 + A2:2001
EN 61000-4-3:	2002
EN 61000-4-4:	1995 + A1:2001 + A2:2001
EN 61000-4-5:	1995 + A1:2001
DIN EN 61000-4-6:	1996 + A1:2001
DIN EN 61000-4-11:	1994 + A1:2001

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System Introduction

Thank you for choosing the Rose Electronics® QuadraVista™. The QuadraVista is the result of Rose Electronics commitment to providing state-of-the-art KVM switching solutions for today's demanding workplace. The QuadraVista has proven to be a valuable investment for any business or office that has a need to monitor, maintain, or control four or more computers simultaneously from a common workstation.

The QuadraVista, Quad Video KVM Switch represents the latest in KVM switching technology. A user can connect to, display, and control four computers from a single KVM station. To add additional computers to the system, the QuadraVista can easily connect to additional QuadraVista's or interface to a KVM switch and connect to 1,000's of computers.

The advanced design of the QuadraVista provides four viewing modes; Quad Screen, Dual screen, Picture-in-Picture (PiP) and Full Screen. Control of a selected computer can be done while in any of the four modes. View four computers in the quad screen mode and control any one of them while monitoring, in real time, the other three computers. In the PiP mode you can view one display on a full screen while monitoring smaller thumbnails of the other three computers.

The KVM Station can be switched to any computer by simple keyboard commands or using the on-screen menu system. This makes configuring, monitoring, and computer switching quick and easy. With a few simple key commands, you can switch to any connected computer, change views, customize the PiP position and size, set-up security for controlling access to the QuadraVista, enable or disable selected channels, and much more.

The QuadraVista supports all combinations of both VGA and DVI video cards and monitors. Each video port on the QuadraVista will automatically be configured for VGA or DVI.

Be more productive, organized and efficient with the dynamic new QuadraVista Quad Video KVM switch from Rose Electronics.

- View four computers simultaneously in the quad mode.
- Switch keyboard and mouse control to any computer while viewing, in real time, the other three computers.
- The QuadraVista handles analog VGA and digital DVI video simultaneously.
- All combinations of VGA and DVI video cards and monitors are supported. Mixing VGA and DVI monitors and graphic cards is no problem for the QuadraVista.

Features

- Connect to four computers making each video source viewable and controllable on a single KVM station
- Four viewing modes; Quad Screen, Picture-in-Picture (PiP), Full Screen, and Dual screen

Quad mode displays four computers on one screen

PiP mode displays one computer in full screen with one or three thumbnail displays of the other computers

Full Screen mode displays the connected computer's video full screen

Dual screen mode displays the left half of the video from two channels

- On-screen menus for easy set-up, console configuration, computer switching, and use
- Crisp, clear, high quality video with resolution up to 1920 x 1200 @ 60Hz
- Automatic or selectable video in and video out resolutions
- Keyboard commands and front panel controls for changing modes and channel selection
- In the Quad mode, switch to and control any of the four screens while monitoring the other three connections in real time
- VGA and DVI video signals are processed simultaneously
- Supports PS/2 and USB computers (PCs, Sun, Mac)
- Supports digital DVI devices (DVD players, HDTV tuners, etc)
- Two USB ports for keyboard and mouse connections
- Connect to KVM switches to view and control 1,000's of computers, routers, Ethernet switches or other serial devices
- Using an XLM-based DCP (Device Control Protocol), the QuadraVista can be controlled remotely using a serial cable
- Quick and simple to install
- Flash memory technology allows for fast and reliable upgrades

Compatibility

Computers	PS/2, USB (including SUN and Mac)
Monitors	VGA to UXGA / DVI
Keyboards (KVM side)	USB
Mouse (KVM side)	USB
Keyboard (Computer side)	USB, PC1, PC2, or PC3
Mouse (Computer side)	USB, PS/2, or PS/2 wheel

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

Package contents

The package contents consist of the following:
QuadraVista
Power cord
Rackmount kit
Flash upgrade cable
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.

About this manual

This manual covers the installation and operation of QuadraVista.

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.

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MODELS

Figure 1. Front View

Selector buttons:

1 – 4	Computer select
Quad	Switches to quad screen view
PiP	Thumbnails of non-selected inputs
Quad + Pip*	Displays the on-screen menu system
1 + 2*	Set output resolution to 640 x 480 @ 60Hz
3 + 4**	Resets to unit defaults

* buttons pressed simultaneously for longer than 1 second
** buttons pressed simultaneously for longer than 4 seconds

Figure 2. Rear View

Connectors

Power	IEC320
Reset	Resets unit to factory defaults (video, keyboard, and mouse)
RS232	RJ45 (Flash upgrade port or external device control)
User Station	(1) DVI, (2) USB-A
Computers	(4) DVI, PS/2 or USB-B
	("Y" adapter required for PS/2 computer connection)

Installation

Please refer to the safety section first before proceeding with any installation or configuration of the QuadraVista.

Installation of the QuadraVista consists of connecting the computers and KVM workstation to the unit. The following steps can be used as a guideline for installing your QuadraVista. It is recommended that you locate the QuadraVista as close as possible to the computers being connected.

Installing the KVM station

Connect your KVM user station to the QuadraVista as shown in Figure 3. Connect a USB mouse and USB keyboard to the corresponding USB ports on QuadraVista. If a PS/2 keyboard and mouse are used, a PS/2 to USB converter must be used.

Next, connect a VGA (HD15F) or DVI monitor to the DVI-I port. If a VGA monitor is used, a VGA (HD15F) to DVI converter cable must be used.
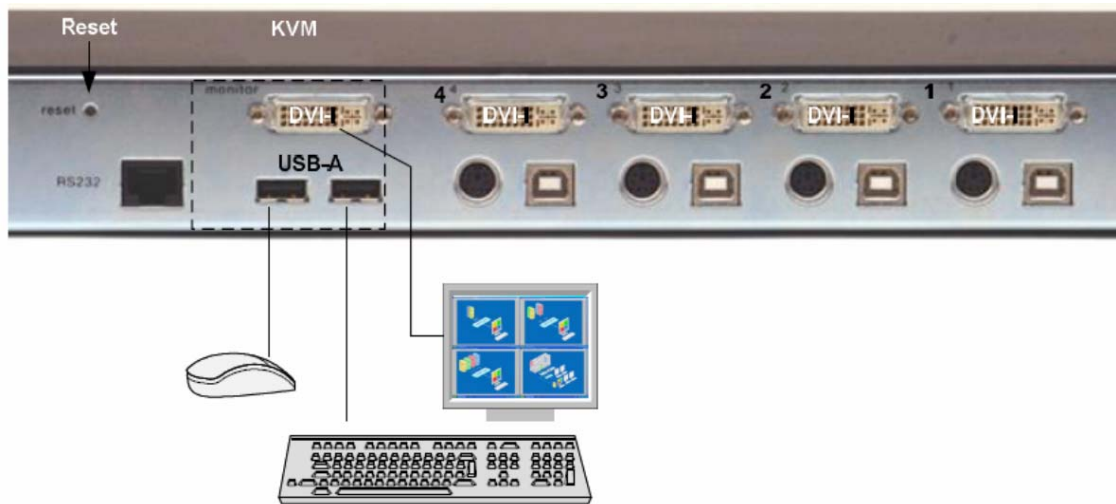

Figure 3. KVM Installation

Installing the Computers

Connect up to four computers to the corresponding video (DVI-I), keyboard/mouse ports on the QuadraVista as shown in Figure 4. It is recommended that the computers being connected and QuadraVista be powered off until all cable connections have been made.

Connect a computer's video output port (DVI or VGA) to the QuadraVista's DVI-I connector for computer #1. If a VGA (HD15F) connector is on the computer, a VGA to DVI cable must be used. Next connect a USB cable from the computer's keyboard/mouse USB port to the QuadraVista's USB input port. If the keyboard and mouse ports on the computer are PS/2, use a PS/2 "Y" cable to connect from the computer's keyboard and mouse PS/2 ports to the PS/2 keyboard/mouse input port on the QuadraVista.

Connect computer #2, #3, and #4 to the corresponding connectors on the QuadraVista's rear panel. You are not limited in using the CPU ports to connect to a computer. The CPU port can also be connected to a Rose KVM switch's KVM port. This can provide access to as many as 1,000 computers or servers. The DVI video input can accept any analog or digital video signal from devices like surveillance cameras, a DVD player, or other compatible video sources and display it on your KVM monitor.

When all cable connections have been made, turn the power on to the QuadraVista and the computers. All six front panel LEDs will flash momentarily, then the green QUAD led will light indicating that the unit is ready for operation and the user monitor will display in the Quad mode, showing all four computers video. If only two video sources are connected, quadrant 3 and 4 will be blank.
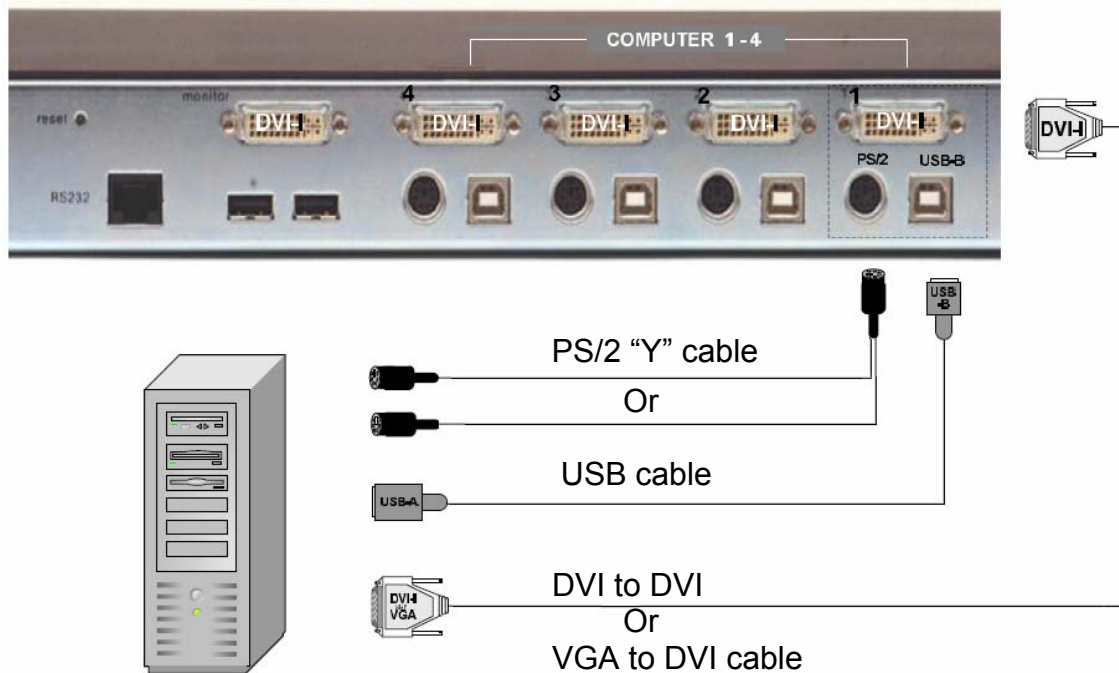

Figure 4. CPU Connect

Front Panel LEDs / Push-Button Commands

The front panel consists of 6 push buttons and 6 corresponding LEDs. The LEDs provide a visual representation of what mode the QuadraVista is in, what computer channel is selected, and what channels are receiving a video signal. The push buttons select a channel, select the quad or pip mode, and invoke the on-screen-menu system.
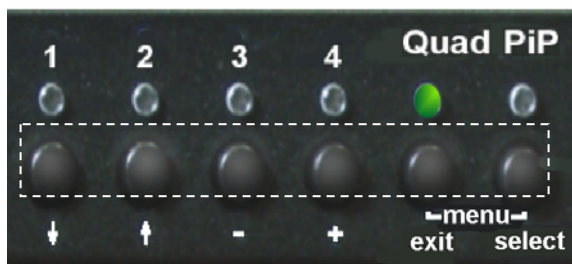
LEDs 1-4 indicate which channel is selected. If the LED is green, the corresponding channel is selected. If the LED blinks green, there is no video signal present on that selected channel. If the LED is yellow, a video signal is present on that channel but not selected.

The Quad LED lights up green when the system is in the Quad mode. No light and the system is in the full screen mode.

The PiP LED lights up green when the unit is in the PiP mode. No light when PiP is not selected. (Note: LEDs 1-4 only indicate video status, not keyboard and mouse)
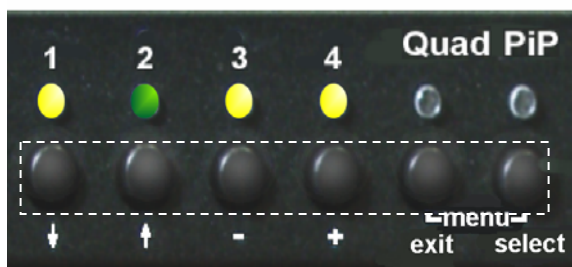
Channel 2 selected, channels 1, 3, and 4 receiving video

Push buttons 1-4 are used to select a channel and display in full screen, the connected video source. If your system is in the Quad mode and you press buttons 1, 2, 3, or 4, that channel is selected and the system automatically switches to full screen mode. Full screen or PiP mode displays are not affected when a channel is selected.

Pressing the Quad button turns "ON or OFF" the Quad mode.

The PiP button activates different functions depending on what screen mode is active (Full, Quad, or PiP mode).
In Full screen mode, the PiP button enables or disables the PiP feature.
In the Quad screen mode, pressing the PiP button enables a channel select window (Figure 5).
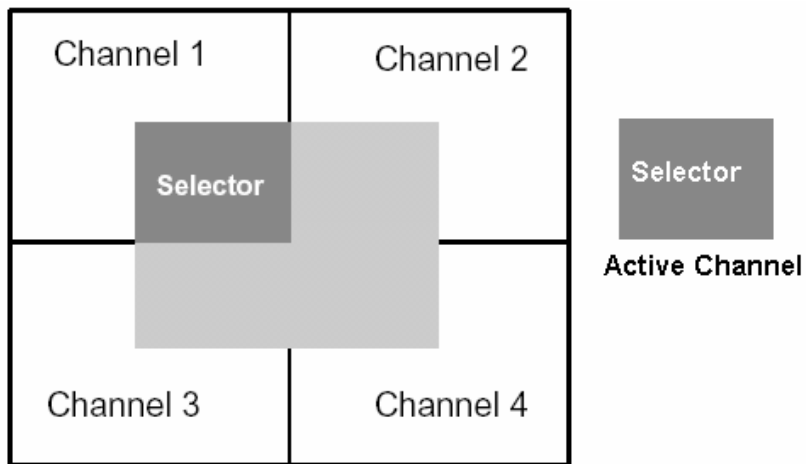
In the Quad mode, the channel selector window will switch active channels each time the PiP button is pressed. The channel selector window will timeout and disappear after a preset amount of non-activity. Timeout value is configured, from 1-30 seconds, using the On-Screen-Display.

Figure 5. Channel select window

The front panel push-buttons have additional features as shown below. Simultaneously press and hold for the designated time to active the feature.
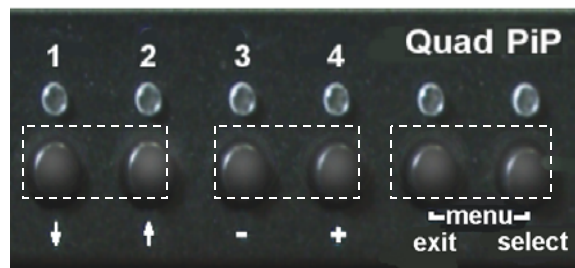
Buttons 1 & 2 set the VGA resolution to 640 x 480
(Press and hold longer than 2 sec)

Buttons 3 & 4 perform a hardware reset for the video, keyboard, and mouse.
(Press and hold longer than 4 sec

Buttons Quad & PiP display the OSD menu.
(Press and hold longer than 1 sec)

For each of the push-button features, there is a corresponding keyboard command that will perform the same feature. Following are the keyboard commands and their features.

Keyboard Commands

The QuadraVista uses a "HOTKEY" to accept and process a keyboard command. When the "HOTKEY" command is recognized by QuadraVista, the keyboard commands immediately following instruct QuadraVista to perform a function, not the connected computer. The default "HOTKEY" command is **left CTRL + Alt** keys pressed simultaneously followed by the command. The "HOTKEY" can be configured using the OSD to a Multiple Key command or a Double Click command.

The Multiple Key command can be modified from the default keys (left **CTRL** + **ALT**) to any combination of the following keys (1 to 4): left **CTRL**, **SHIFT**, **ALT**, and **WINDOWS** keys.
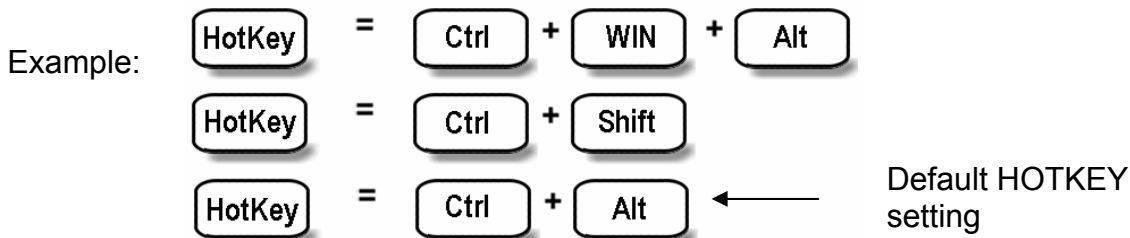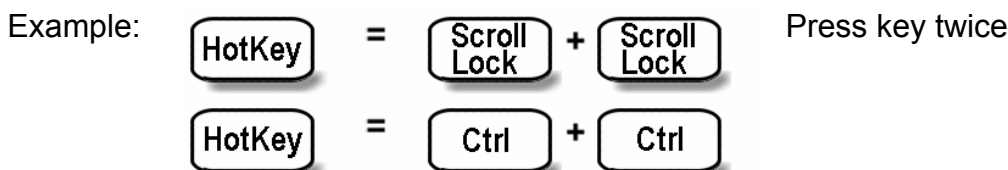
Example:

HotKey = Ctrl + WIN + Alt

HotKey = Ctrl + Shift

HotKey = Ctrl + Alt ← Default HOTKEY setting

The Double Click (one key, pressed twice = HOTKEY) command can be assigned to the left **Ctrl**, **Shift**, **Alt**, or the **Scroll Lock** key.

Example:

HotKey = Scroll Lock + Scroll Lock   Press key twice

HotKey = Ctrl + Ctrl

To execute the following commands, press the assigned HOTKEY then, within 2 seconds press the command key.

| "HK" + Command	Description
"HOTKEY" + O	Invoke the on-screen menu system
"HOTKEY" + F	Change display to full screen mode
"HOTKEY" + P	Change display to PIP function
"HOTKEY" + 1	Switch to computer 1 (Full Screen)
"HOTKEY" + 2	Switch to computer 2 (Full Screen)
"HOTKEY" + 3	Switch to computer 3 (Full Screen)
"HOTKEY" + 4	Switch to computer 4 (Full Screen)
"HOTKEY" + Q	Change display to quad mode
"HOTKEY" + F1	Switch to quad mode and activate channel 1
"HOTKEY" + F2	Switch to quad mode and activate channel 2
"HOTKEY" + F3	Switch to quad mode and activate channel 3
"HOTKEY" + F4	Switch to quad mode and activate channel 4
"HOTKEY" + I	PIP menu
"HOTKEY" + V	Reset video resolution to 640 x 480 @ 60Hz

ON SCREEN DISPLAY

On Screen Menu System

The QuadraVista has an easy to use menu system that enables you to customize the "System", "Mode", "Configuration", "Console", "Video", and "Computers". Each section is described in detail on the following pages. The On screen Menu System structure is shown below.

SECTION	SUB-SECTION	FEATURES .
System	Hotkey	Multiple Hotkey / Double Click Hotkey
	HotMouse	HotMouse recognition / timeout
	Quad Mode	Timeout for channel selection
	OSD Position	Position of OSD window
	OSD Language	English / German
	Security	Set security level (1 – 8)
	Test Pattern	Cross hairs – Color gradient – Rhombus Rectangle – Stripes (3) – RGB Convergence – Manufacturer
	Disable Channel	Inactivate unused channel(s)
	Control	Control the QuadraVista externally using the serial port
Mode	PiP	Size, zoom, position, display mode
	Start	Set start configuration
Configuration	Backup	Save current parameters
	Recall	Restore last saved configuration
	Factory Reset	Reset to factory default settings
Console	Video Output	Output resolution (auto or selection)
	Keyboard	Keyboard layout (English, German)
	Multi-Monitor	Assigning mouse & keyboard to video
	EDID	Display EDID data of monitor
Video	Video Input	Displays video input (DVI, VGA, VGA-DVI, or DVI-VGA)
	Brightness	Set brightness (analog mode only)
	Contrast	Set contrast (analog mode only)
	Horiz. Position	Horizontal screen position
	Vert. Position	Vertical screen position
	Screen Width	Set screen width (analog mode only)
	Phase	Adjust phasing (analog mode only)
	Format	Fit input format to screen
Computer	Keyboard	Display keyboard type (PC1, 2, 3, or USB)
	Mouse	Display mouse type (PS/2, PS/2 wheel, or USB)
	Reset PS/2	Resets PS/2 mouse and keyboard
	EDID/DDC	Program Input EDID
Help	Command	List of keyboard commands
	About	Revision level – Firmware / hardware
	Contact	Contact information

Main Menu
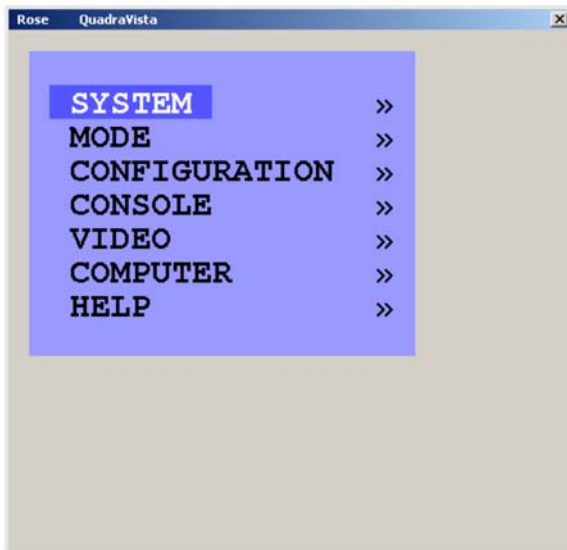
The Main Menu is called up by pressing the assigned HotKey + O (not zero) key. You can also simultaneously press the Quad and PiP front panel buttons. This is the starting point for the OSD menus. From the main menu you can set-up the system, select the start-up mode, and configure the system features.
Each OSD menu feature is described in this section.

System menu
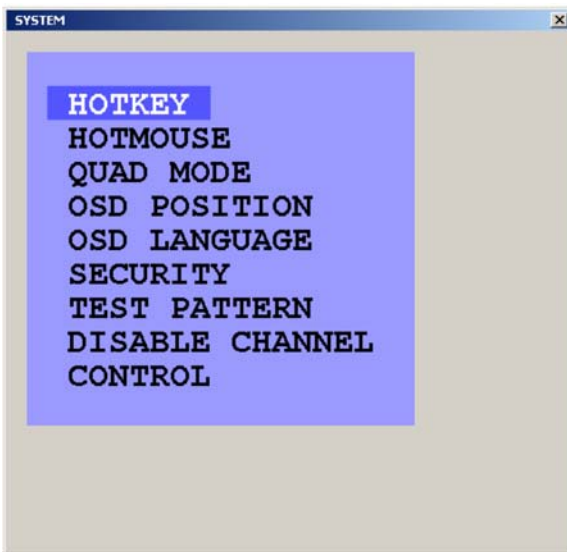
The system Menu is called up by highlighting SYSTEM from the main menu and pressing enter. From the system menu you can set-up the Hotkey, Hotmouse, Quad Mode, OSD Position, change OSD languages, security, display nine different test patterns to fine tune the video, disable channels and set-up remote control features.

ON SCREEN DISPLAY

System / HotKey

The system HOTKEY window is used to define the multiple keys HOTKEY and Double Click HOTKEY features. To modify the HOTKEY features, call up the Main menu (Default = left Ctrl + Alt + O key). From the Main menu, highlight "SYSTEM" and press enter. Highlight "HOTKEY" and press enter. The SYSTEM / HOTKEY window shown in Figure 6 will display.
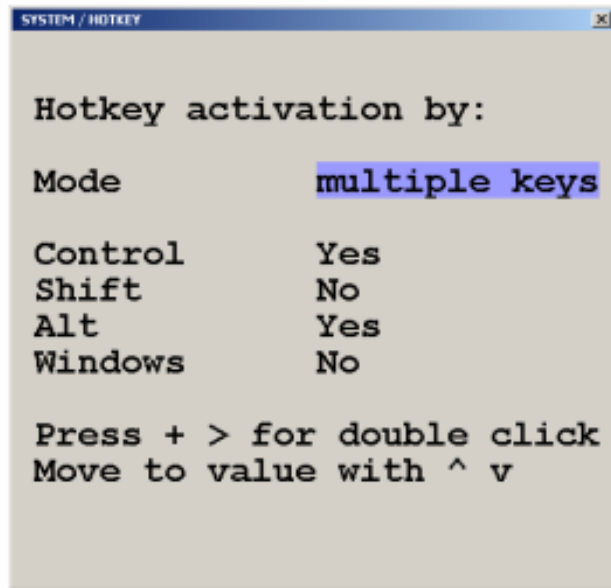
From this menu you can modify which multiple keys and Double Click key defines the HOTKEY. Use the arrow keys to navigate through the menu. Select "Yes" or "No" to choose 1-4 keys for the HOTKEY.

Press the + key to switch to the double click menu.
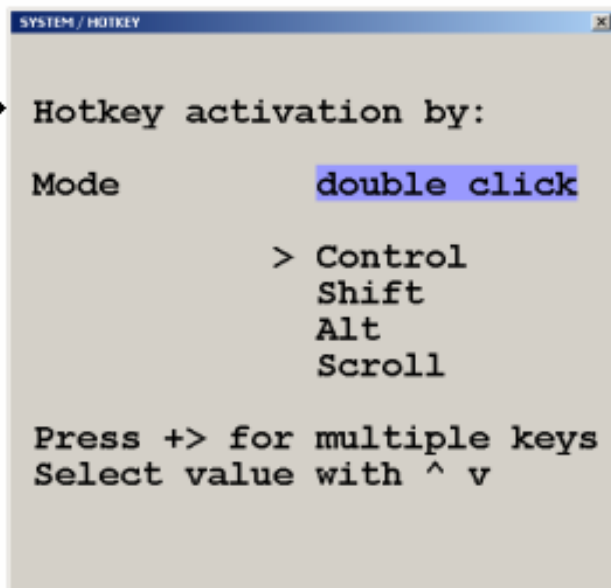
The double click HOTKEY activation menu allows you to define which key to double click on to be the HOTKEY.

Use the arrow keys to select one of four key choices to define the double click HOTKEY method.

Figure 6. HotKey menu

When the multiple key and double click key assignment has been made, exit the menu system and these values will be saved.

If you assigned the Control, Alt, and Shift keys (menu value = "Yes") to be the multiple key HOTKEY, then you must press these three keys simultaneously plus the command key.

If the shift key was assigned to be the double click HOTKEY, then you must press the shift key twice then the command key.

System / HotMouse

The Hotmouse works similarly to the HOTKEY function where an operation is activated using only the mouse. To use the Hotmouse feature, it first must be enabled. Navigate to the SYSTEM / Hotmouse window and enable the Hotmouse (set to "Yes") and set the timeout value (1 to 30 sec.). This determines how long the selection window is displayed.
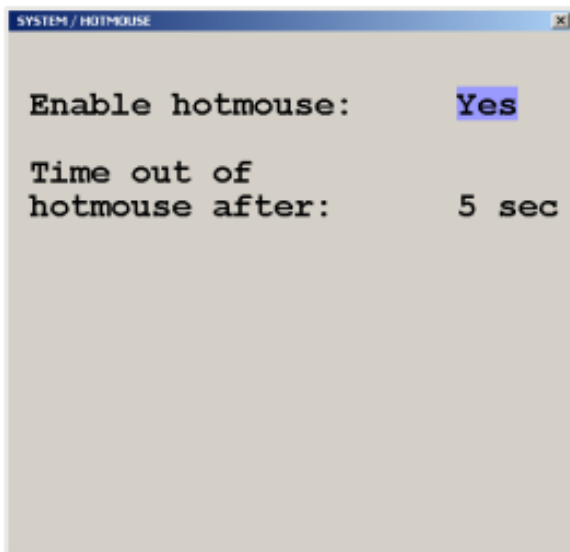
Enabling the HOTMOUSE feature, you can perform several functions using only the mouse:
(Switch channels, size PiP window, and other features)

Figure 7. System HotMouse

To activate the Hotmouse cursor feature, move the mouse rapidly in alternating horizontal directions four times (Note: the Hotmouse must be enabled for this feature to function).

$$\rightarrow \leftarrow \ \rightarrow \leftarrow \qquad or \qquad \leftarrow \rightarrow \ \leftarrow \rightarrow$$

The Hotmouse cursor will change depending on the view mode. Activating the Hotmouse in the Full screen mode will temporarily display the PiP images of the non-selected channels (see below). Moving the cursor to a PiP image and clicking on the left mouse button will switch, full screen, to that channel.
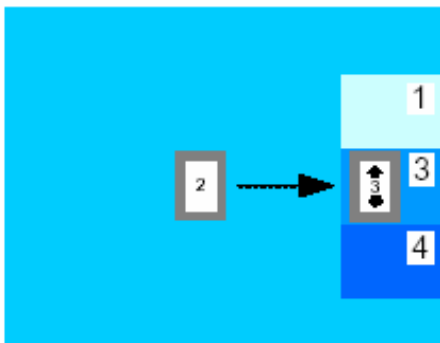
Activating the Hotmouse in the Quad screen mode will display a box cursor with the active channel number in the box (see below). Moving the cursor to any quadrant and clicking on the left mouse button will switch control (keyboard / mouse) to that channel.
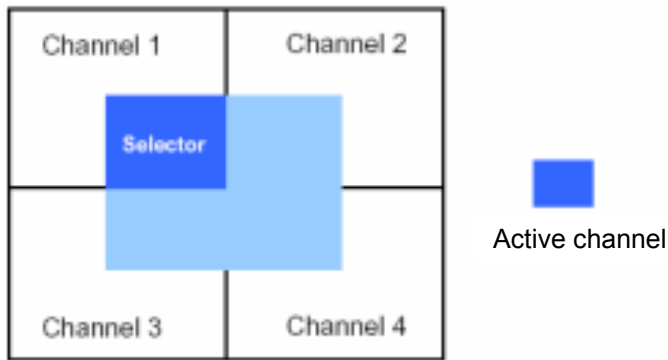
Active channel

Activating the Hotmouse in the PiP mode has three features;

1- Switch active full screen channels

Channel 2 active

Activate Hotmouse, Move cursor to PiP 3 Press left mouse key

Channel 3 active (Keyboard/ mouse)
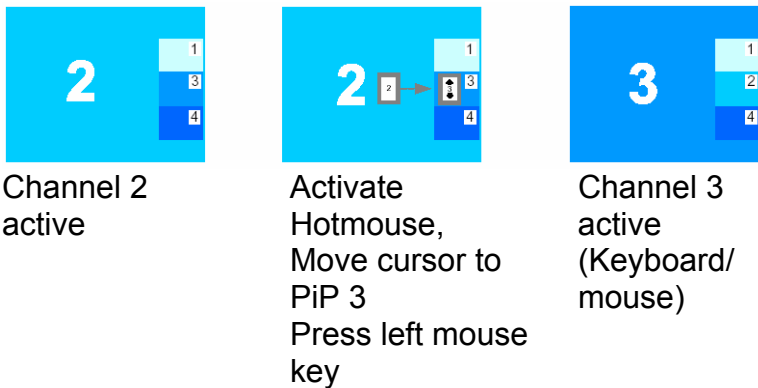
2- Move the PiP images vertically

Channel 2 active

Activate Hotmouse, Move cursor to PiP windows Press/hold left mouse key, move PiP windows vertically

Release mouse key, PiP windows are in new vertical position
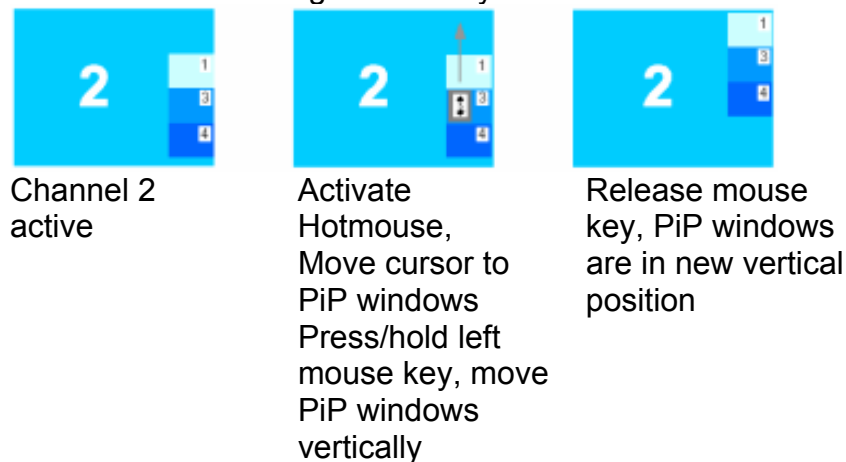
3- Modify the PiP image size
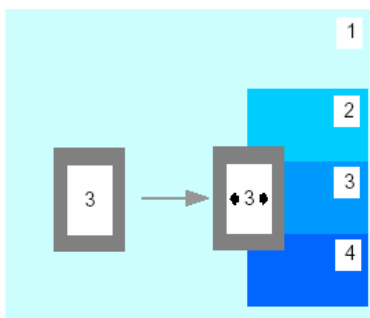
Activate the Hotmouse and move the cursor to the left edge of the PiP window.
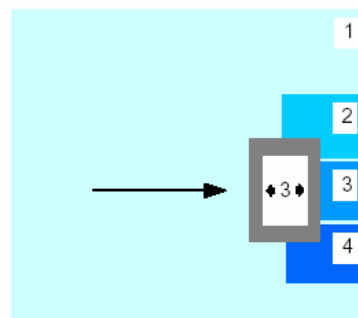
Press and hold the left mouse button and drag the PiP window to the left or right to increase or decrease the PiP size.

Hotmouse Menu

A menu is associated with the Hotmouse that can be called up to perform various functions based on what screen mode the system is in. To activate the Hotmouse menu, first activate the Hotmouse by moving the cursor rapidly to the left and right 4 times. When the Hotmouse cursor appears, click the right mouse button and depending on the screen mode, the Hotmouse menu will display.
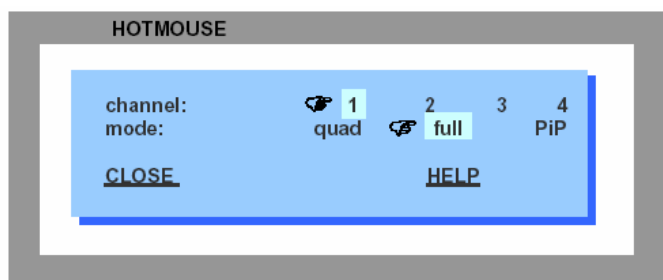
Hotmouse menu in Quad or Fullscreen Mode

In the Full screen or Quad mode, the Hotmouse menu allows you to switch channels, change display modes (quad, full, PiP, Dual), or activate a channel.
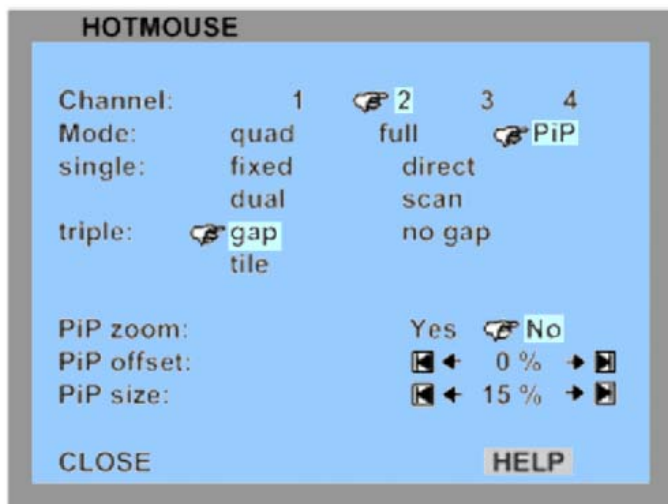
In the PiP mode the Hotmouse menu allows you to Switch channels, change the display mode, change the position, size, and zoom of the PiP images, change PiP mode (Triple gap, no gap, tile), and set the scan time.

System Quad Mode

SYSTEM / QUAD MODE ☒

```
Time out of
channel selection:    5  sec
```
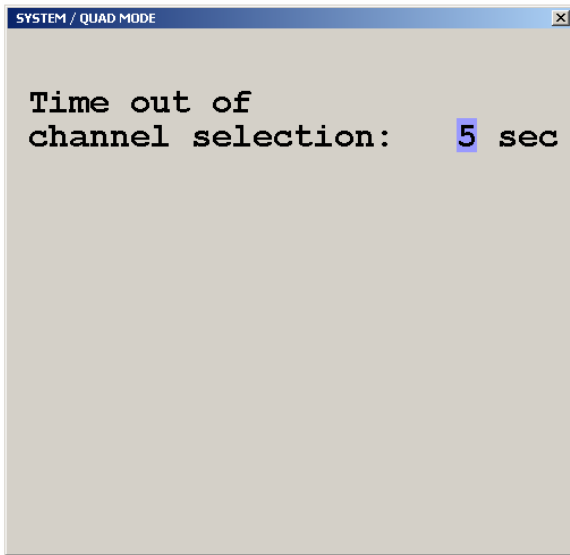
From the system / quad mode menu you
can set the timeout of the quad selection
window.

Figure 8. System Quad Mode

System OSD Position

SYSTEM / OSD POSITION ☒

```
Set OSD position:


              ^
     < -    [   ]  + >
              v


Move with keys ^ v < > + -
```

Selecting OSD position allows you to set
the screen position of the OSD menus.
Use the arrow keys to move the OSD
screen position

Figure 9. System / OSD Position

System / OSD Language

```
SYSTEM / OSD LANGUAGE                    [x]

  OSD language:

          >  English
             Deutsch
             Español
```

Selecting OSD Language from the System menu allows you to change the language from English, Deutsch, or Spanish. Use the up / down arrow keys to select the desired language.

Figure 10. System / OSD Language

System / Security

```
SECURI. / ENTER PASSWORD                 [x]

  Please enter password:

                ......

  Use keys 1 2 3 4

  Exit/Esc: Exit
```
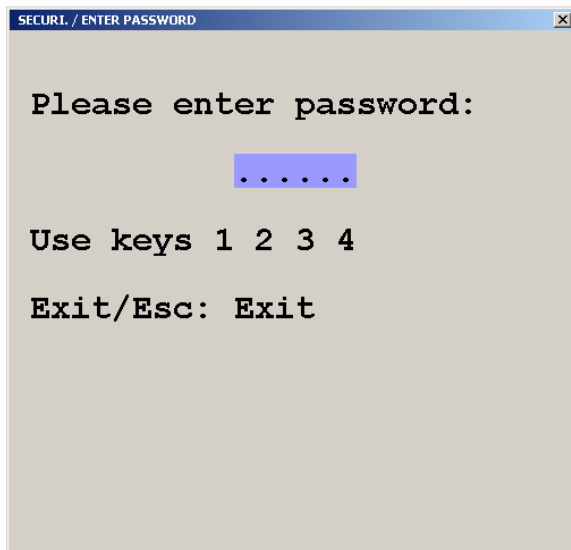
Selecting the Security feature displays the password screen. Enter the predefined password and the security window will display. Select the security level (1 – 8). These levels are defined below.

Figure 11. System / security

Following lists the security level and functions each level can access. Level 1 security can perform all functions. Level 0 is the factory security setting which enables all functions.

QuadraVista OSD security matrix

Menu	Sub-Menu	Security Level							
		1	2	3	4	5	6	7	8
System	Hotkey	•	•						
	HotMouse	•	•						
	Quad Mode	•	•						
	OSD Position	•	•	•	•				
	OSD Language	•	•	•					
	Security	•	•	•	•	•	•	•	•
	Test Pattern	•	•	•	•	•			
	Disable Channel	•							
	Control	•	•	•	•	•	•	•	
Mode	PiP	•	•	•	•				
	Start	•	•	•	•				
Configuration	Backup								
	Recall	•	•	•	•				
	Factory Reset								
Console	Video Output	•	•	•	•	•	•	•	
	Keyboard	•	•						
	Multi-Monitor	•							
	EDID	•	•	•	•	•	•	•	
Video	Video Input	•	•	•	•	•	•	•	
	Brightness	•	•	•					
	Contrast	•	•	•					
	Horiz. Position	•	•	•					
	Vert. Position	•	•	•					
	Screen Width	•	•	•					
	Phase	•	•	•					
	Format	•	•	•	•				
Computer	Keyboard	•	•	•	•	•	•	•	
	Mouse	•	•	•	•	•	•	•	
	Reset PS/2	•							
Help	Command	•	•	•	•	•	•	•	
	About	•	•	•	•	•	•	•	
	Contact	•	•	•	•	•	•	•	

• = Authorization to this OSD function is permitted

Security level 0 is the factory default setting. All settings are allowed and all functions enabled

Additional security features are listed below for each security level. These features are in addition to the OSD security levels listed above.

Security level 8 (most limited level) allows you to work only on pre-selected channel (computer) in a predefined display mode (Quad / Full / PiP). Except the security menu, where you can change the security level there are no other operations available.

Security level 7 is the same as security level 8. All OSD windows are available that have information contents only (showing display modes, active channels and settings):

Security level 6 is the same as security level 7 with the addition of:
Active channel setting using front panel, keyboard, or mouse commands
Channel selection in Quad Mode using front panel PiP button

Security level 5 is the same as security level 6 with the addition of:
- Display mode setting (Quad / Full / PiP) using front panel buttons,
- keyboard or mouse commands

Security level 4 is the same as security level 5 with the following OSD additions:
-   Modify PiP settings using HotMouse menu
-   System - OSD Position
-   Mode - PiP / Start features
-   Configuration - Recall
-   Video - format

Security level 3 is the same as security level 4 with the following OSD additions:
-   System – OSD language
-   Video – All video OSD features

Security level 2 is the same as security level 3 with the following OSD additions:
-   System – Hotkey / Hotmouse / Quad Mode
-   Console - keyboard

Security level 1 is the same as security level 2 with the additions of:
- Set video output to VGA using keyboard command (Hotkey V) or front panel buttons 1+2
-   System – Disable channel
-   Console – Multi-Monitor / Video output
-   Computer – Mouse / Reset PS/2
-   Video – Video input
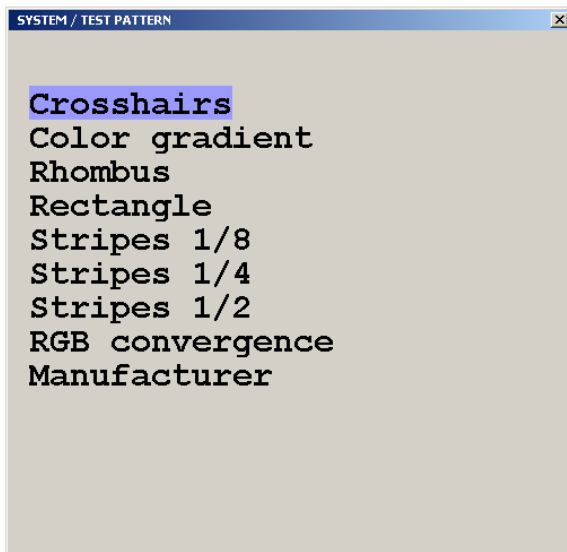
Use the Test Pattern to check the function of internal video circuits or to check the quality of the connected console monitor. It's recommended to use all the test patterns for the test procedure.

Figure 12. System / Test Pattern

There are nine test patterns to assist in adjusting the colors and skew.

CROSSHAIRS

COLOR GRADIENT

RHOMBUS

RECTANGLE

STRIPES (3)

RGB CONVERGENCE

MANUFACTURER
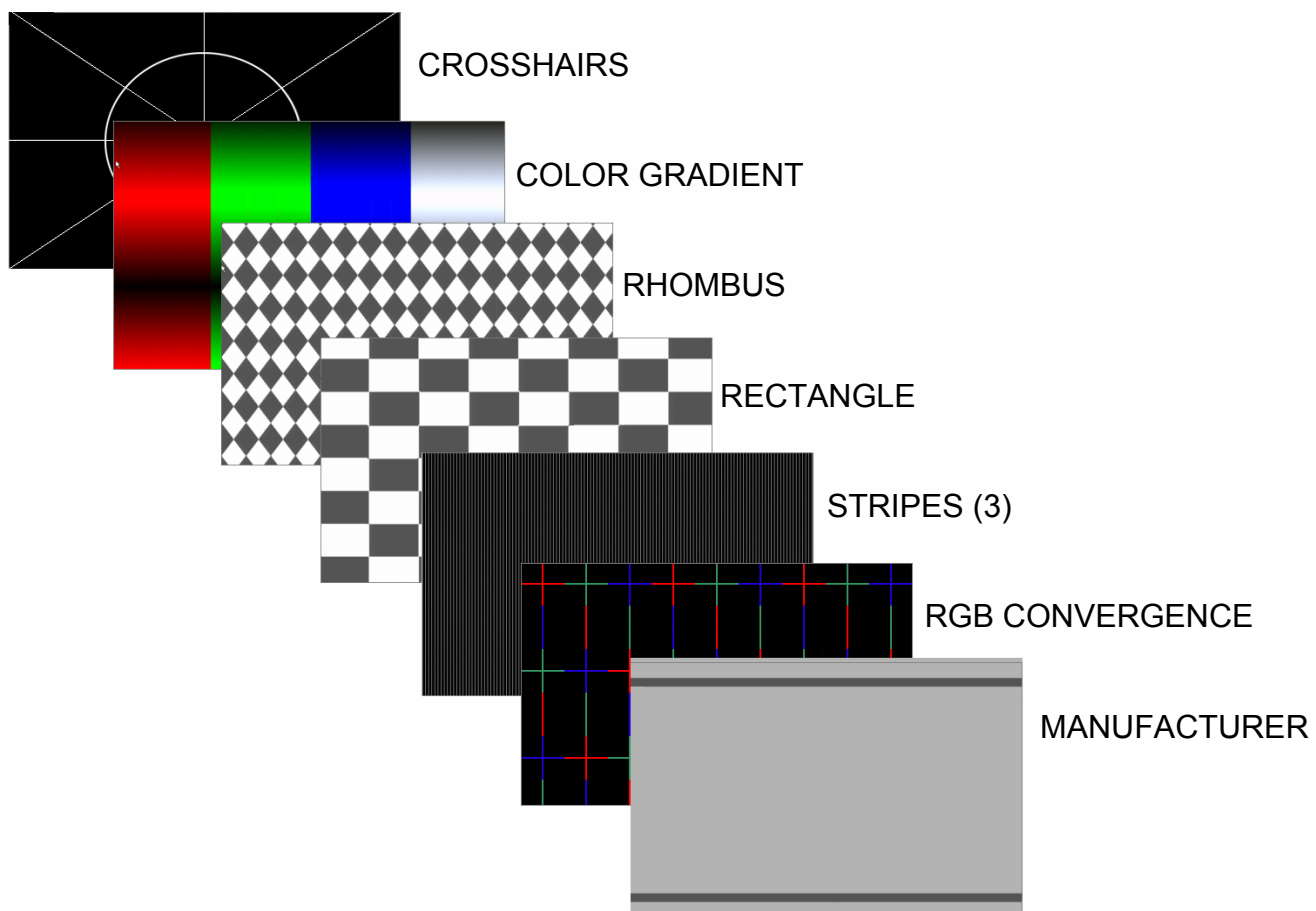
System / Disable Channel

Using this feature, the connected computers should be connected to the channel ports in ascending order. Connecting computers to channel 1, 2, and 4 and selecting the number of channels to be 3, channel 4 can not be displayed.

```
SYSTEM / DISABLE CHANNEL                    ☒

   Number of active channels:

              1
              2
              3
           >  4

   Move to value with ^ v

   Enter / Select to choose
```

Use the Disable Channel function to select the number of channels to display. If computers are connected to channel 1, 2, and 3, then select 3.

Figure 13. System / Disable Channel

System / Control

```
SYSTEM / CONTROL                            ☒

   DCP mode:

       >  off
          control
          synchronize
```
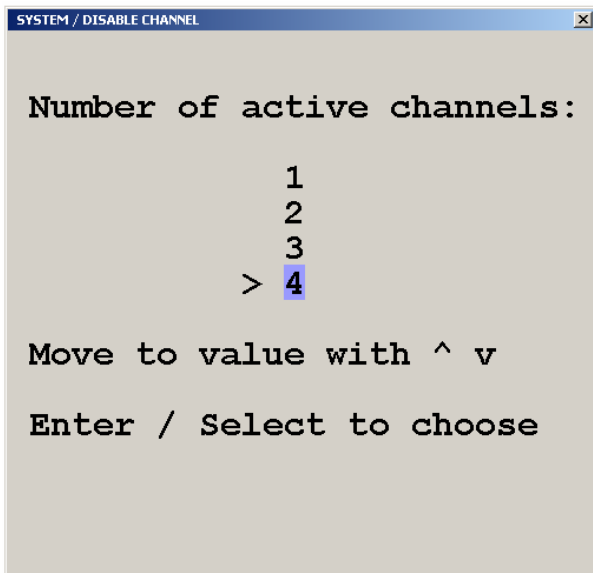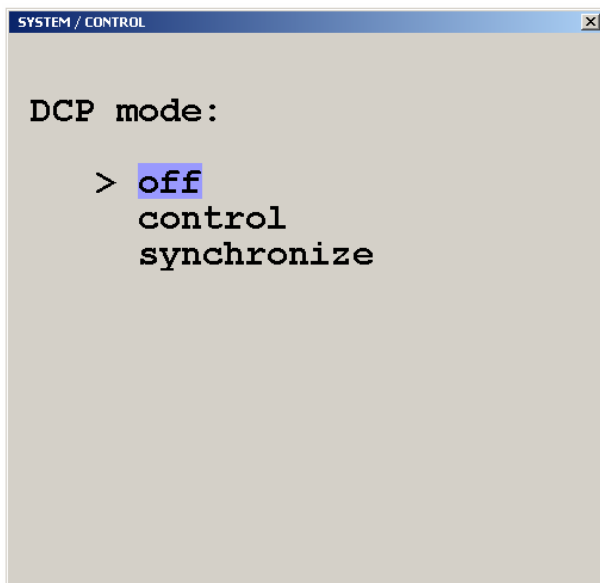
The system / control feature allows setting up of the QuadraVista from a computer or external device connected to the serial port.
Selecting control allows external control of the OSD.
Selecting synchronize will keep cascaded QuadraVista units in the same video mode.

See the Serial Operations Section.

Figure 14. System / Control

The DCP (Device Control Protocol) offers three modes, off, control and synchronize. Set the DCP mode to "Control" if a single QuadraVista will be controlled from an external computer. Set the mode to "Synchronize" if you system features several linked QuadraVista's. When in this mode the QuadraVista status is transmitted to the external computer. For local unit operation, set the mode to off. See the **Serial Operations** section for detailed information on the DCP mode.

Mode / PiP-Start

Selecting "MODE" and pressing enter displays the mode screen. Two mode selections are available, PiP and Start. The PiP features and configuration can be set-up, and the channel and mode setting on start-up.

```
MODE                          ⊠

    PiP
    START
```

The PiP menu allows you to change from triple to single PiP. Triple display shows the three non-active windows on the right of the screen. Single display shows only one non-active window. PiP size, zoom, and offset from the top of the screen can be set.

```
MODE / PiP                    ⊠

PiP display mode:    triple
Active channel:      gap



PiP size:            15%

PiP zoom factor:     1

Offset from top:      0%
```
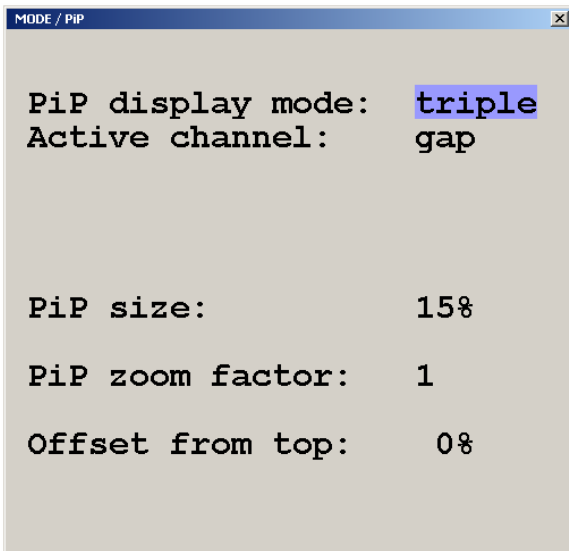
PiP display modes:
  Triple – Displays the three non-active channels
  Single – Displays one non-active channel
     Fixed – Permanently displays one non-active channel
     Scan – Scans non-active channels in one PiP window (scan time 1-9 sec)
     Direct – Permanently displays one non-active channel. Select the desired channel to display directly.

```
MODE / START                    ×|

channel:       >1    2    3    4
mode:          >quad  full  PiP




PiP Settings

Use current mode
```
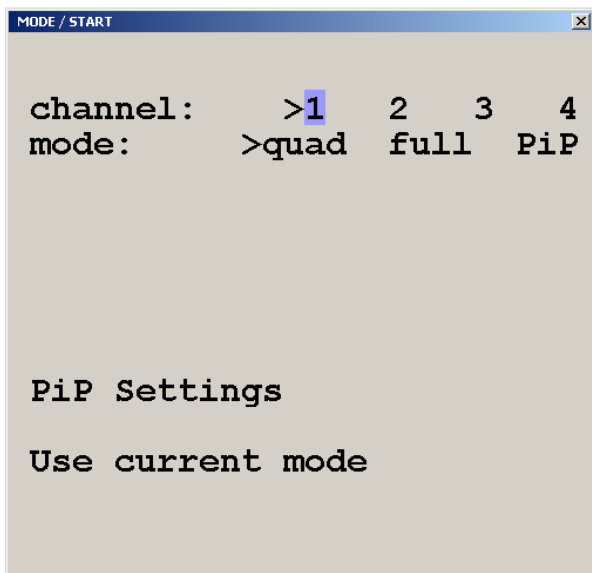
Selecting Start from the MODE menu defines which channel is active, the display mode, and the PiP settings when power is applied.

Figure 15. Mode / PiP-Start

Configure

Configure / Backup, Recall, Factory Reset

The backup command saves the current device settings.


```
CONFIGURATION                   ×|        CONFIGURATION / BACKUP              ×|

BACKUP                                    WARNING: Storing a backup
RECALL                                    configuration will
FACTORY RESET                             overwrite any previous
                                          backup configuration.


                                          Press Enter / Select to
                                          confirm

                                          Press Esc / Exit to cancel
```
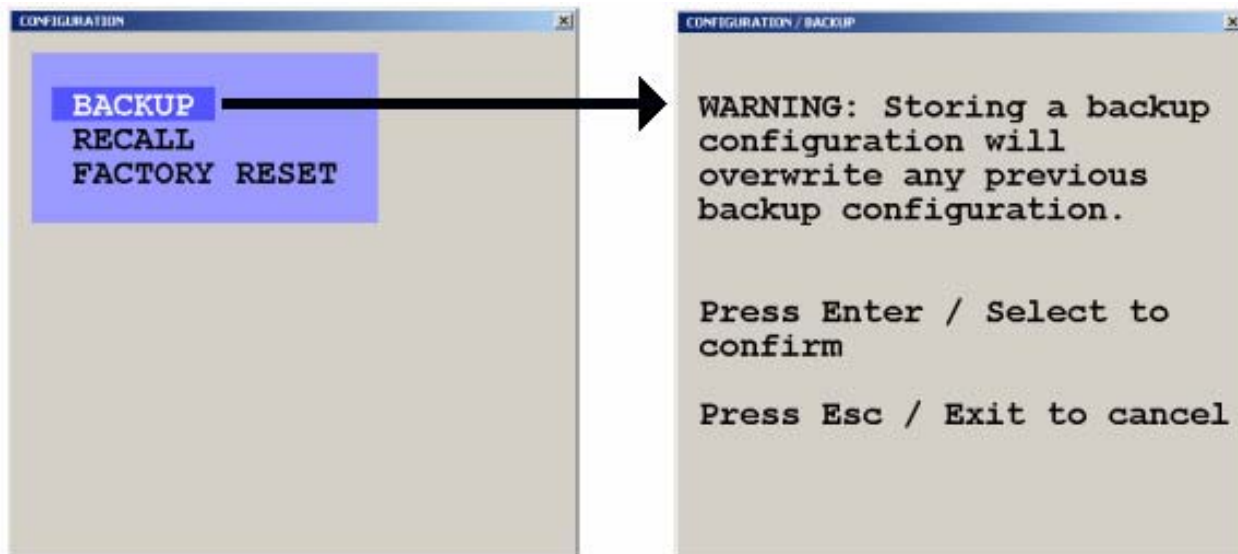
Figure 16. Backup

The recall command replaces the current settings with the latest backup.
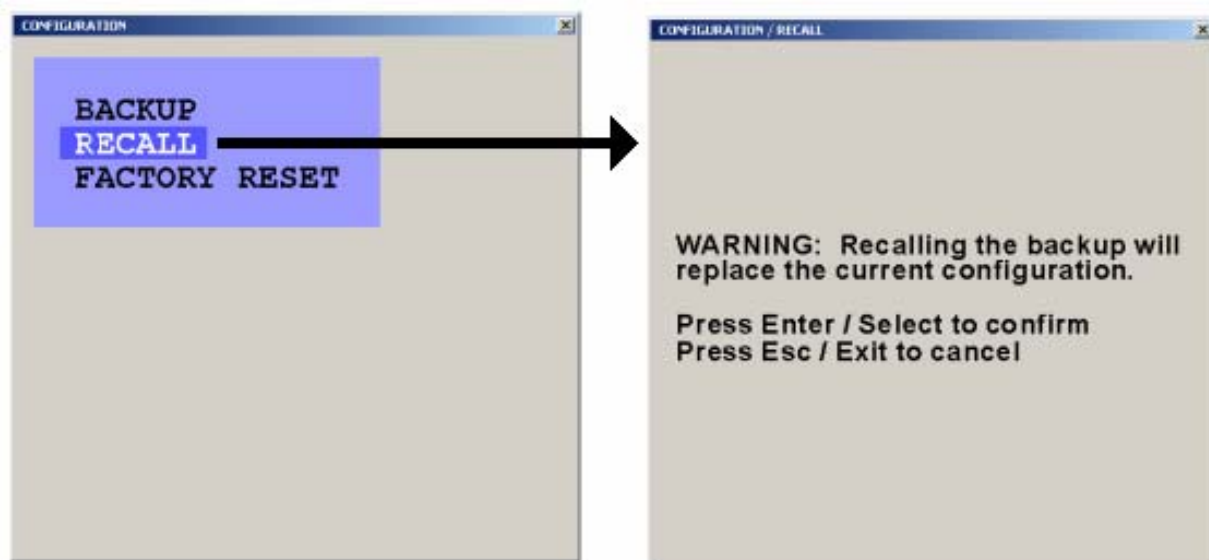

Figure 17. Recall

The Factory Reset command resets the unit to the original factory settings
See Appendix C. for factory reset values.

Figure 18. Reset

QUADRAVISTA INSTALLATION AND OPERATIONS MANUAL
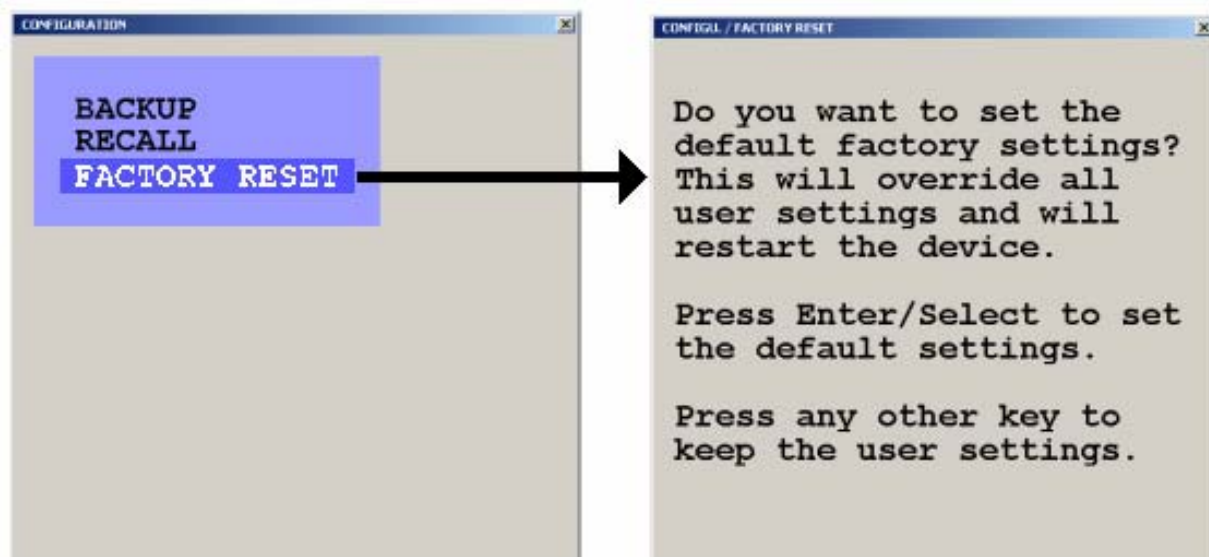
Video output / Keyboard / Multi-Monitor / EDID

Selecting "Console" from the main menu displays the options for the video output, keyboard, Multi-monitor, and EDID.
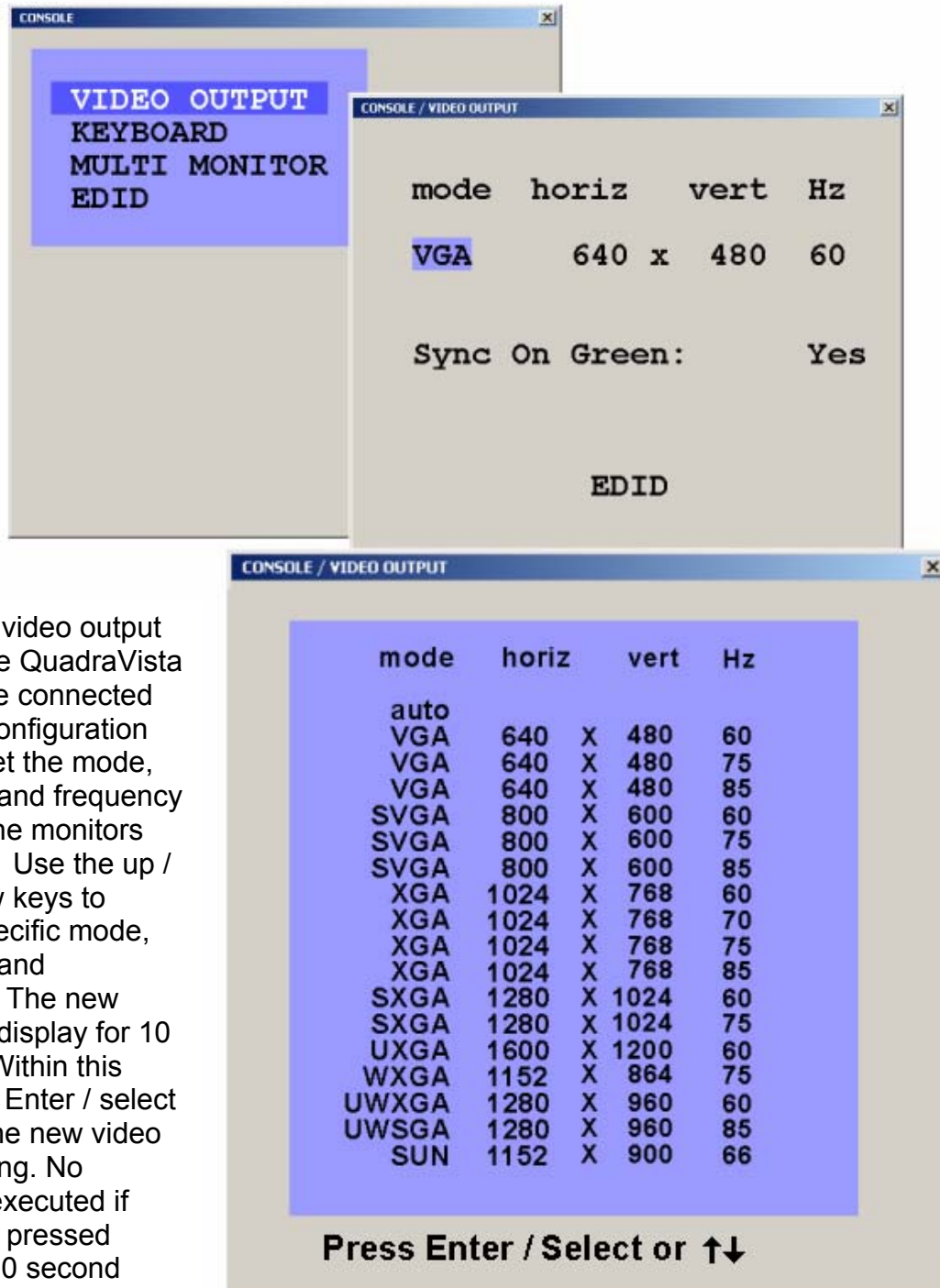
Setting the video output to "auto" the QuadraVista will read the connected monitor's configuration data and set the mode, resolution, and frequency based on the monitors DDC table. Use the up / down arrow keys to select a specific mode, resolution, and frequency. The new setting will display for 10 seconds. Within this time, press Enter / select to accept the new video output setting. No change is executed if enter is not pressed within the 10 second period.
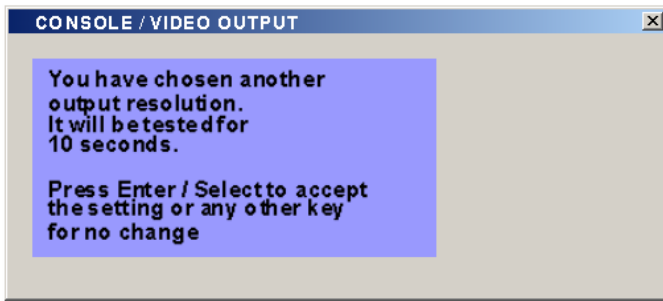
Changing the video resolution will display the notification window shown to the right. Press Enter to accept the new setting or any other key for no change.

Figure 19. Console, Video output

Console / Keyboard

The keyboard option sets the keyboard language to English, German, Spanish, French, or Italian

Figure 20. Keyboard layout

Console / Multi-Monitor

The QuadraVista can be set-up to connect to computers with multiple video outputs. Selecting Multi monitor opens the Multi monitor window. If your computer uses a graphic card with two video outputs, assign the computers keyboard and mouse for Monitor 1 and 2 to channel 1.

```
CONSOLE / MULTI MONITOR                    [x]


 Select for each monitor on
 which channel the mouse
 and the keyboard are
 active:


   Monitor 1: > channel 1
   Monitor 2: > channel 2
   Monitor 3: > channel 3
   Monitor 4: > channel 4
```
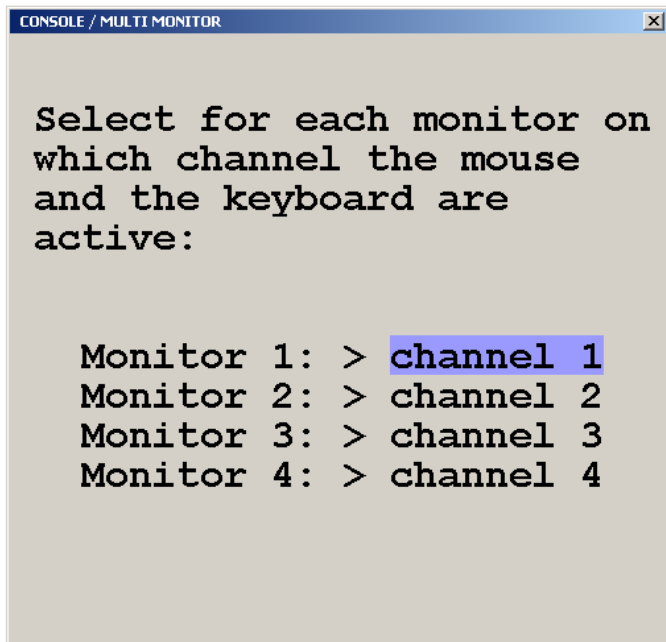
Example – Multi-Monitor

PC(1) Dual Video keyboard/mouse/video1 to input #1, video2 to input #2.

KVM Switch (3) to input #3

KVM Switch (4) to input #4

Set Multi-Monitor options to:
Monitor 1:   Channel 1
Monitor 2:   Channel 1
Monitor 3:   Channel 3
Monitor 4:   Channel 4

Figure 21. Multi-Monitor setup

The EDID menu, when selected, will read and display the EDID data of your console monitor. **E**xtended **D**isplay **I**dentification **D**ata is a VESA 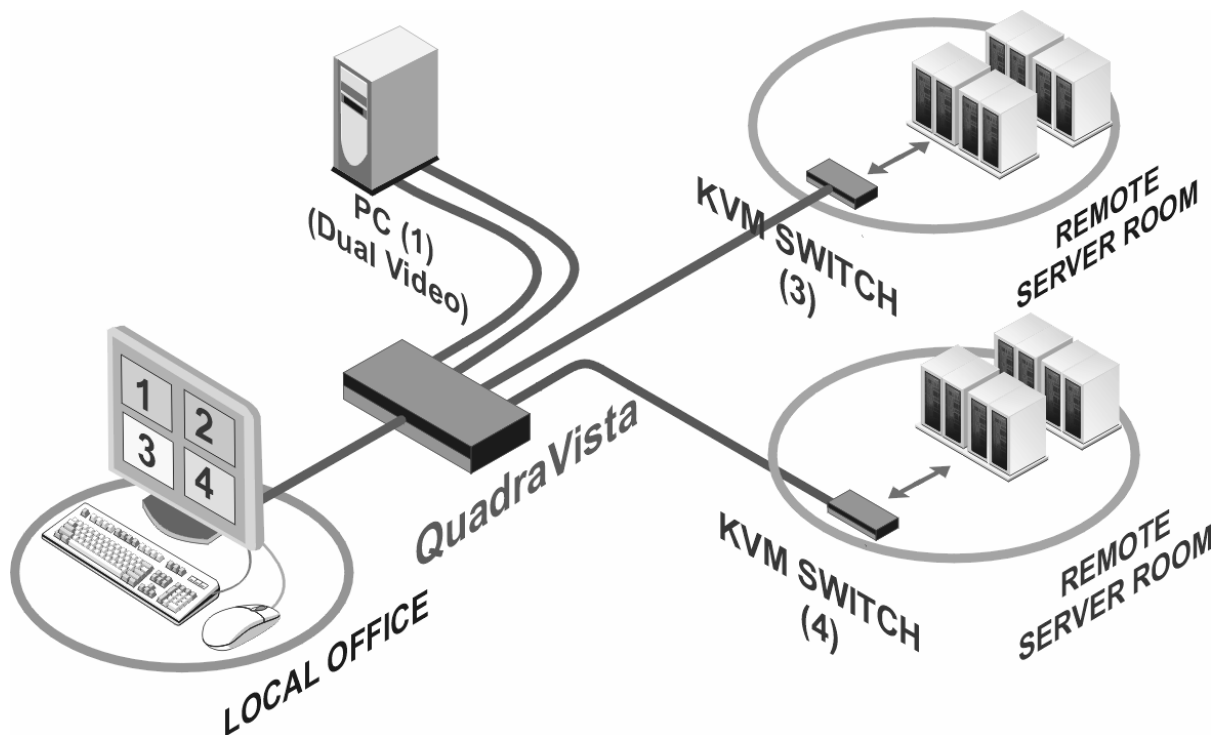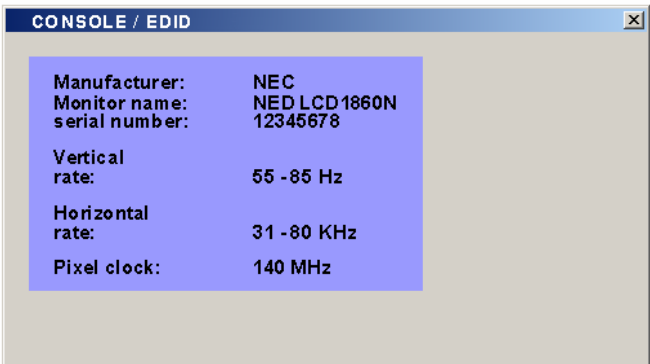standard data format that contains basic information about a monitor and its capabilities, including vendor information, maximum image size, color characteristics, factory pre-set timings, frequency range limits, and character strings for the monitor name and serial number

Figure 22. EDID display

Video

From the main menu, selecting Video will display a menu that allows you to view or change the connected computers video information, set the brightness, contrast, horizontal position, vertical position, screen width, phase, and format. Selecting Video Input will display the video information QuadraVista has automatically detected from the four video inputs (Plug & Play).

Video / Video Input

In the lower part of the Video Input window you define which video input is selected for display. If both signal inputs DVI/VGA or VGA/DVI are selected, the first one will be processed and displayed. If there is no signal present the other automatically will be selected and processed
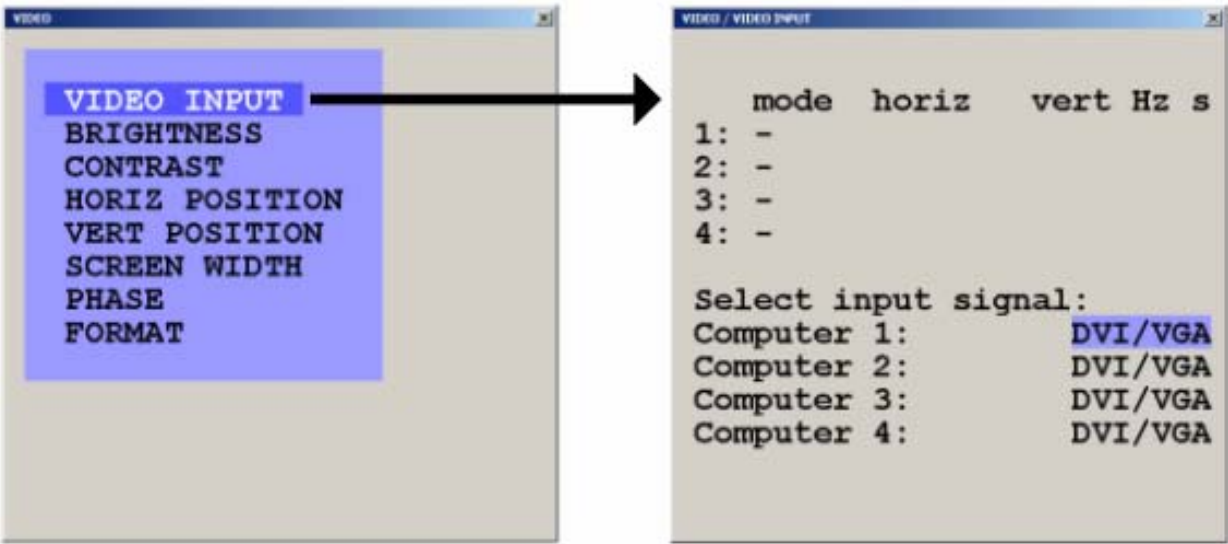
The "S" column shows the type of video detected, a = analog, d = digital, g = sync on green, c = composite sync

Figure 23, Video input

Appendix D shows the video formats QuadraVista can support

Video / Brightness / Contrast

Using the brightness / contrast menu, you can adjust video brightness and contrast for each analog video input. Using he arrow keys, select the computer to adjust and increase or decrease the brightness or contrast.
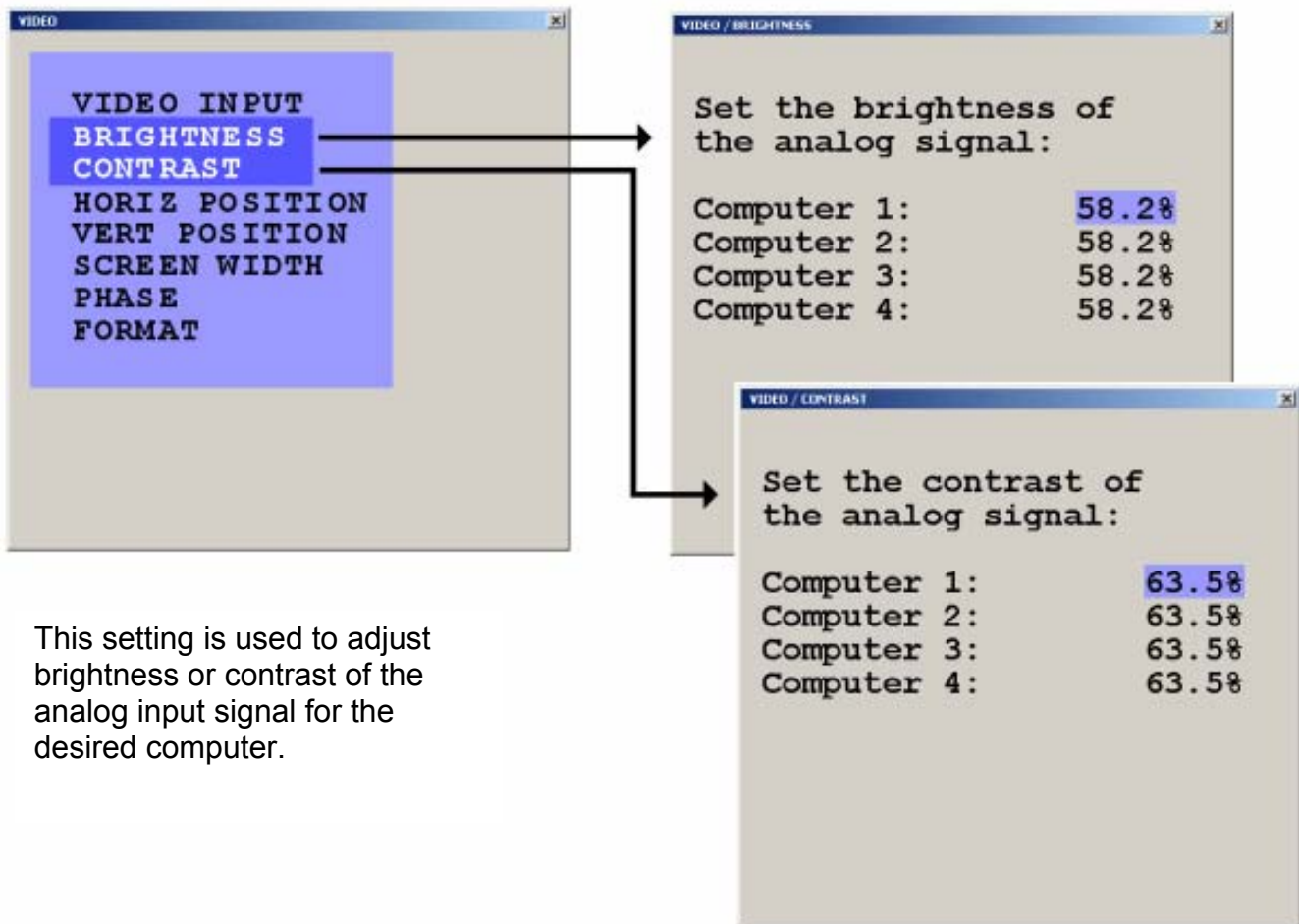
This setting is used to adjust brightness or contrast of the analog input signal for the desired computer.

Figure 24. Video Brightness / Contrast

Video / Horizontal and Vertical position

The Horizontal position menu is used to adjust the position of a computer's screen manually
To adjust the horizontal position, select the computer to adjust, and then select the auto/man field.
Select "Man" and adjust the position using the + and – keys. It is recommended that the "Auto" setting be used for all computers.
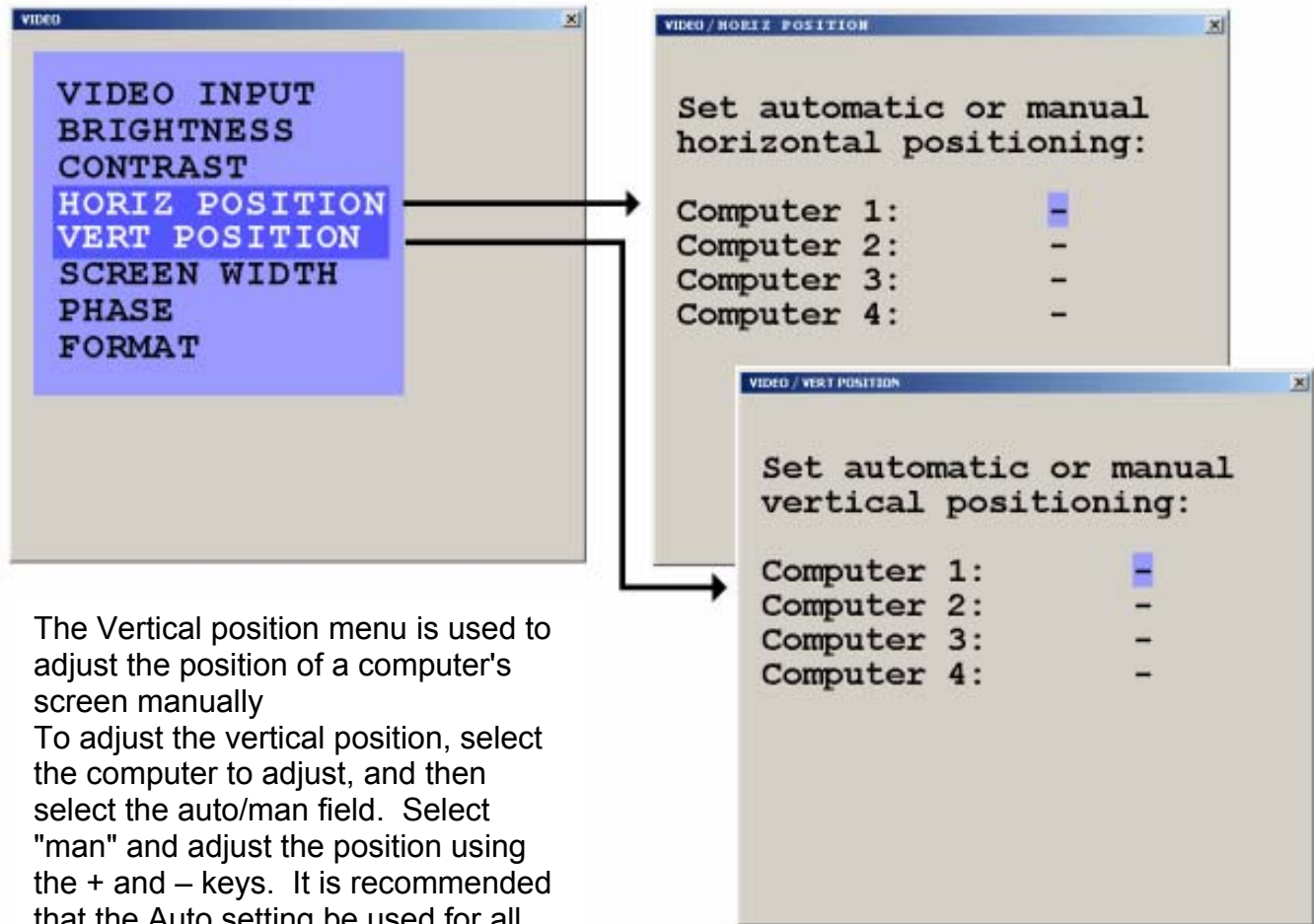
The Vertical position menu is used to adjust the position of a computer's screen manually
To adjust the vertical position, select the computer to adjust, and then select the auto/man field. Select "man" and adjust the position using the + and – keys. It is recommended that the Auto setting be used for all computers.

Figure 25, Horizontal Position

Video / Screen width

```
VIDEO                                    ×

    VIDEO INPUT
    BRIGHTNESS
    CONTRAST
    HORIZ POSITION
    VERT POSITION
    SCREEN WIDTH
    PHASE
    FORMAT
```
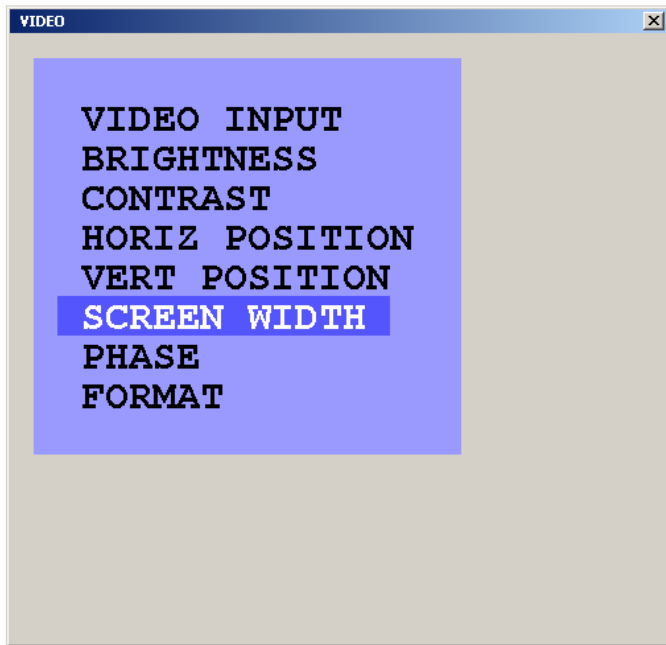
The width of the screen can be adjusted to improve screen quality by selecting the screen width menu, the computer to modify, and adjusting the number of horizontal pixels

Figure 26. Screen width

Video / Phase

```
VIDEO / PHASE                            ×

  Adjust the clock phase of
  the analog signal:

  Computer 1:        +0
  Computer 2:        +0
  Computer 3:        +0
  Computer 4:        +0
```
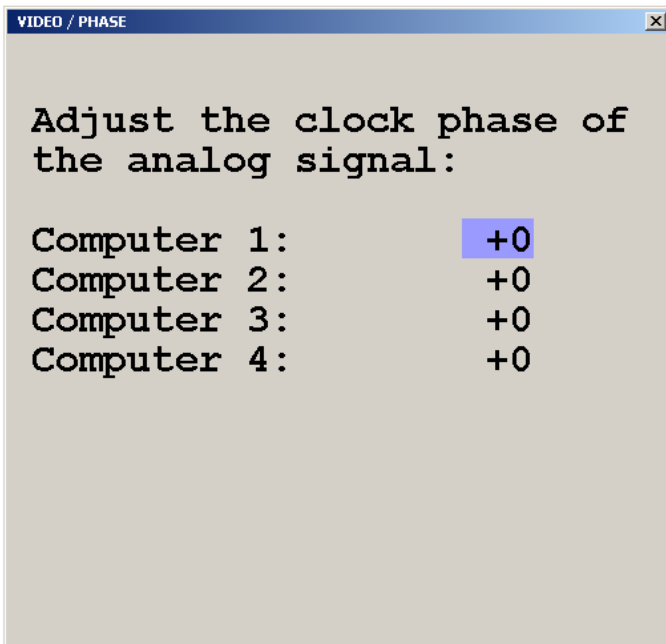
If a computer's phasing is incorrect (blurring screen, incorrect contrast) use the Phase menu to adjust the video phasing from the detected value.

Figure 27. Clock phase
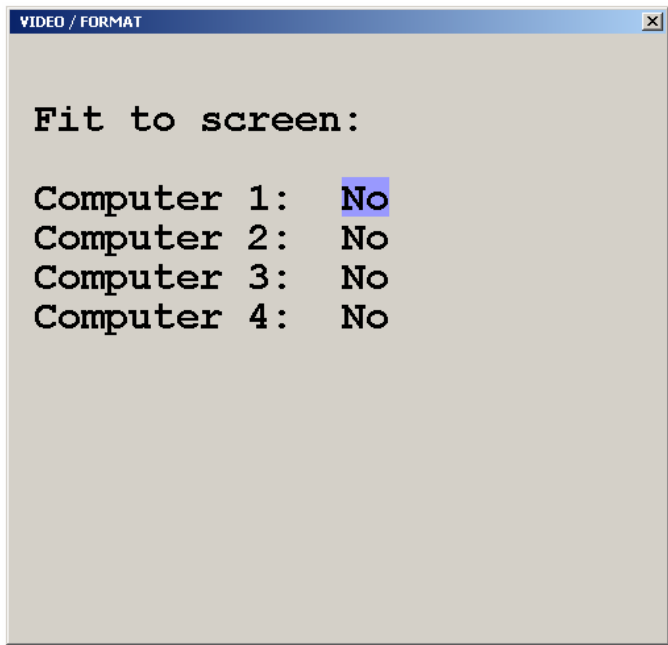
Wide screen monitors (aspect ratio 16:10) normally display black borders on the left and right side of the display. Setting "Fit to screen" to Yes so that computer will resize the image to fill the entire quadrant or PiP.

Figure 28. Video format

Computer

Selecting Computer from the main menu will display the features that can be displayed or modified for each computer connection.
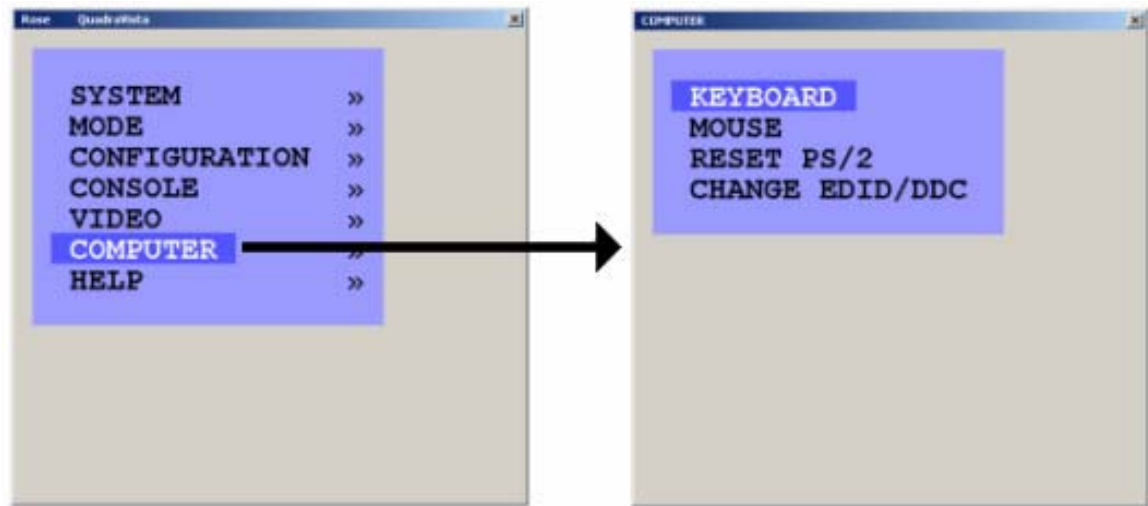
Figure 29. Computer

Computer / Keyboard

COMPUTER / KEYBOARD

```
Computer 1:        -
Computer 2:        -
Computer 3:        -
Computer 4:        -
```
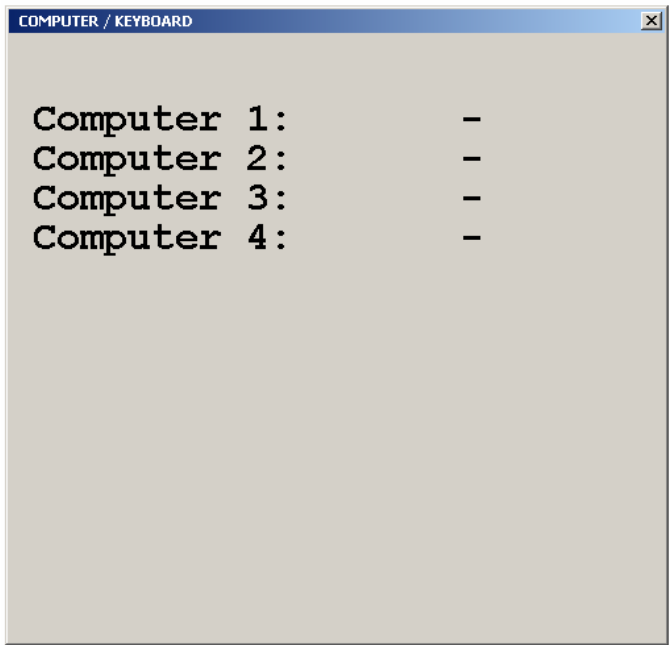
Selecting keyboard and pressing enter will display the type of keyboard the system has detected for each connected computer (USB, PC1, PC2, or PC3).

Figure 30. Computer / Keyboard

Computer / Mouse

COMPUTER / MOUSE

```
Computer 1:        -
Computer 2:        -
Computer 3:        -
Computer 4:        -

Mouse positioning USB:
Computer 1:        relative
Computer 2:        relative
Computer 3:        relative
Computer 4:        relative
```
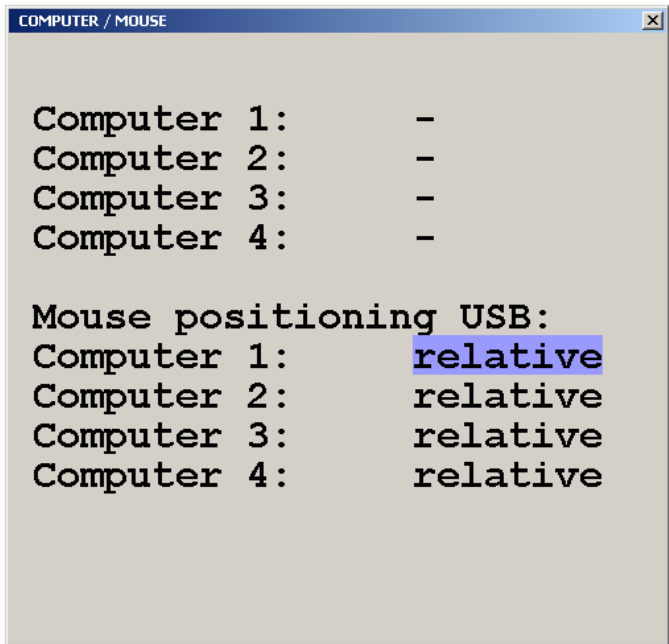
Selecting mouse and pressing enter will display the type of mouse the system has detected for each connected computer (USB, PS/2, or PS/2 wheel)

The Mouse positioning USB: lower section allows you to choose absolute mouse positioning when a device is connected to the console that supports absolute coordinates such as graphic trays, screen pads or KVM extenders.

Figure 31. Computer / Mouse
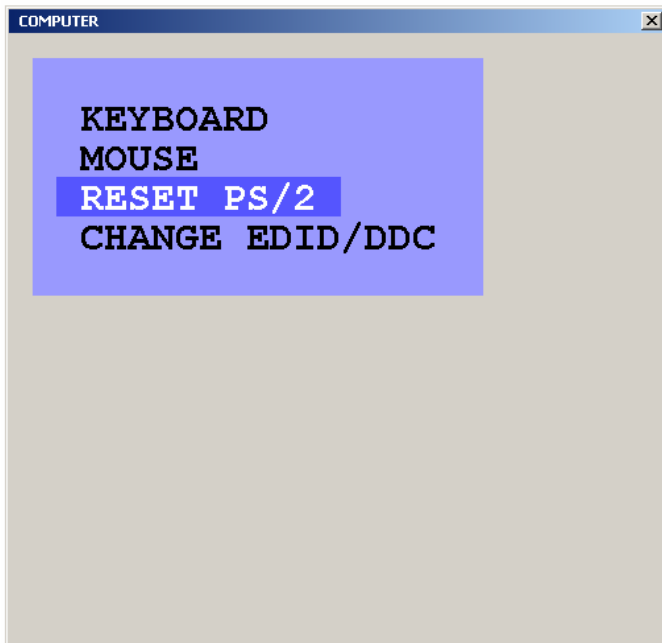
Computer / Reset PS/2

Select Reset PS/2 when the keyboard or mouse have been disconnected or get out of sync.

Use the arrow keys or the "+" and "-" keys to select the channel to reset and press enter / select.

Figure 32. Computer / Reset PS/2

Computer / Change EDID/DDC
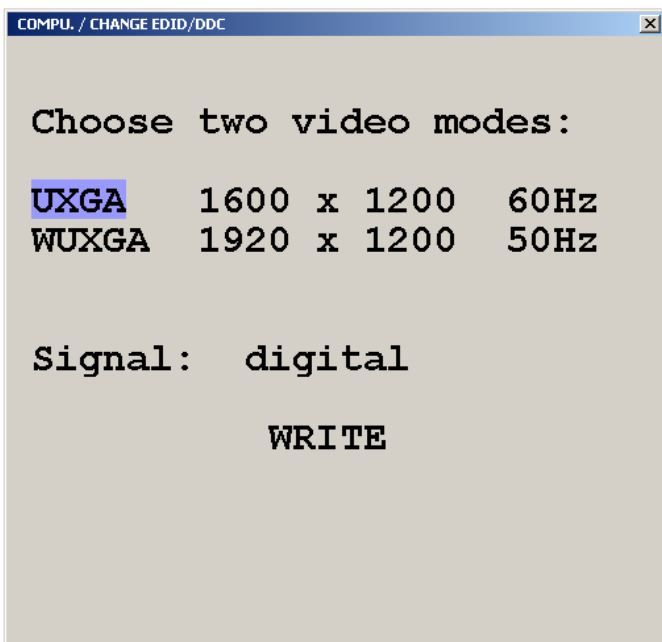
Select Change EDID / DDC to add two selectable video modes to the list of video modes available at each of the four video ports.

Use the left, right arrow keys (◄ ►) to select the first video mode to add. Once selected, use the up, down arrow keys (▲ ▼) to select the second video mode to add. Use the left, right arrow keys (◄ ►) to select the second video mode to add. When both video modes have been selected, use the up, down arrow keys (▲ ▼) to select signal and the left, right arrow keys (◄ ►) to select analog or digital.

With all entries completed, select "WRITE" and press ENTER / SELECT and the window shown on the right in Figure 34 will open.

Figure 33. Computer / Change EDID/DDC

```
Choose two video modes:

UXGA      1600 x 1200    60Hz
WUXGA     1920 x 1200    50Hz


Signal:   digital

              WRITE
```

```
EDID Programming:

Connect video input you
wish to program to video
output and confirm by
twice pressing
ENTER / SELECT.
```
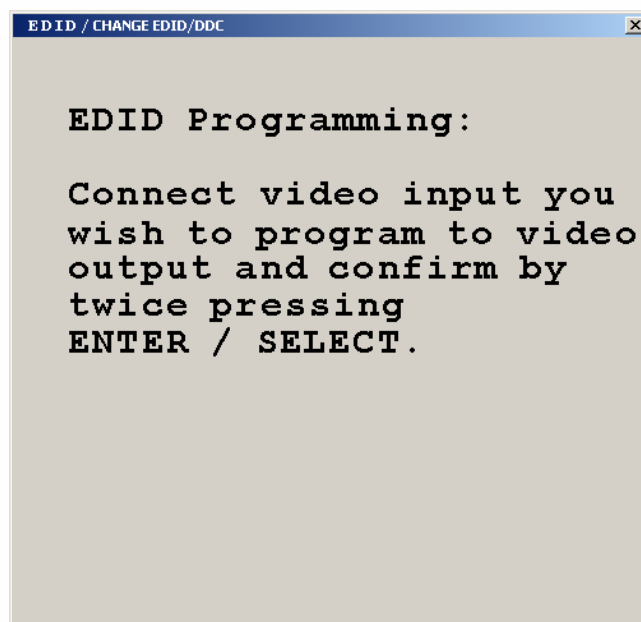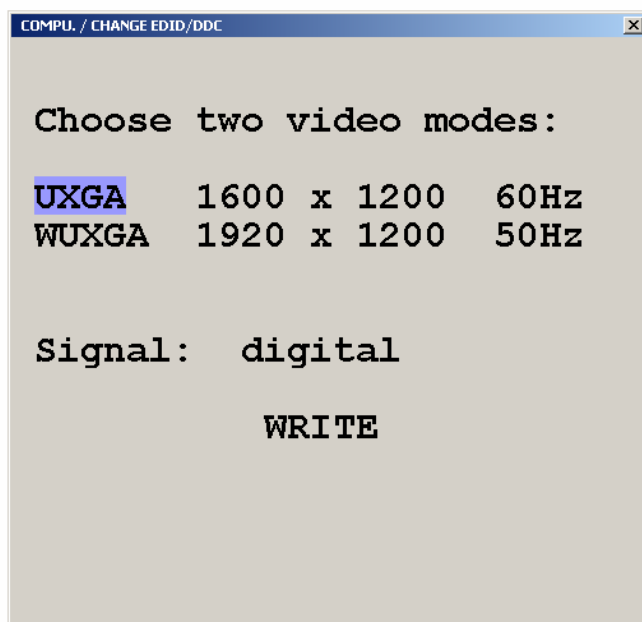
When the window to the above right displays and before pressing ENTER / SELECT twice, disconnect the console monitor cable and the computer monitor port to program. Connect a DVI male to male cable from the video output to the computer video input to program (1-4). The video will go blank and programming must be executed blindly. When the DVI cable has been connected, press ENTER / SELECT twice to program the additional video modes. Reconnect the console monitor and computer monitor cable and the display to the right will display. Repeat this procedure for the other three video input ports if necessary.

```
Program EDID

Successful
```

Figure 34. EDID Programming

Help

Selecting the help section will display the keyboard command list, about, and contact information. The Command List option will display the keyboard commands recognized by QuadraVista.
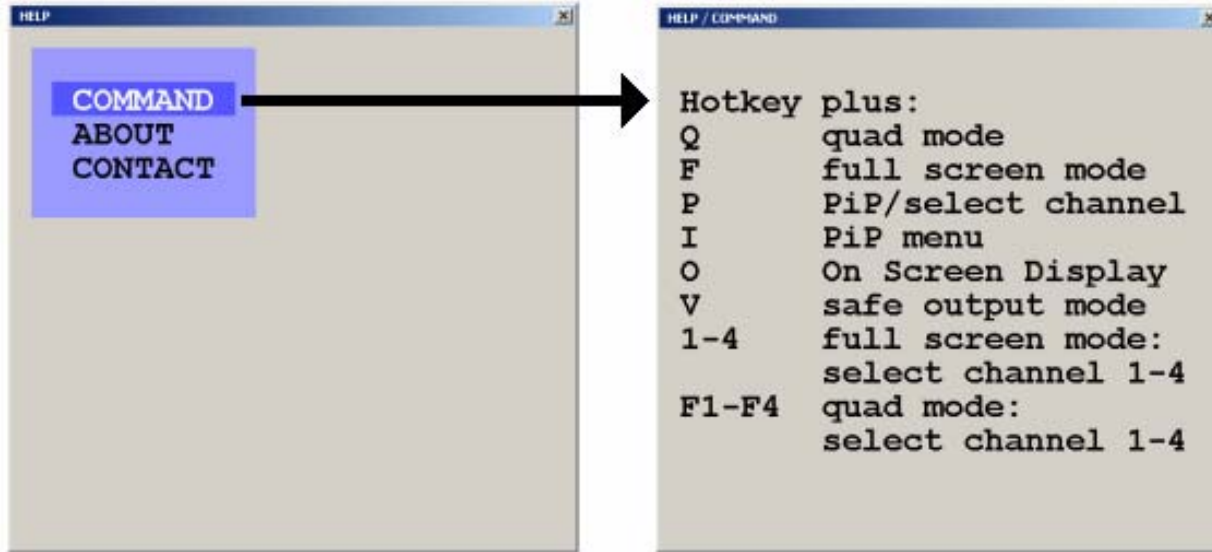
Figure 35. Help / Command

The About section informs you of information pertaining to the QuadraVista.
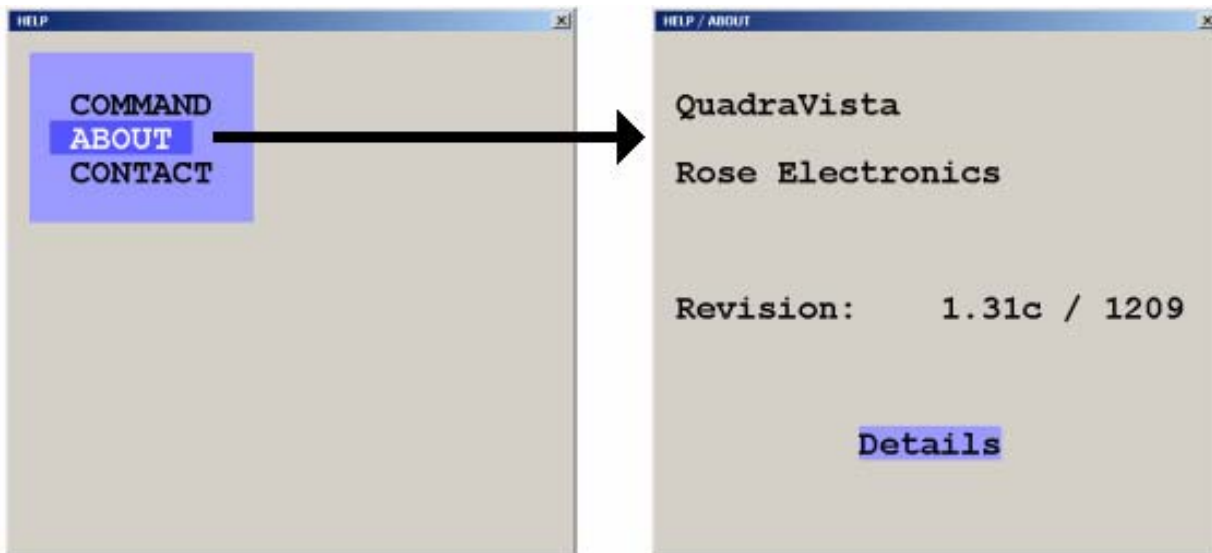
Figure 36. Help / About

The Contact section provides you with information on who to contact for technical assistance and other information.
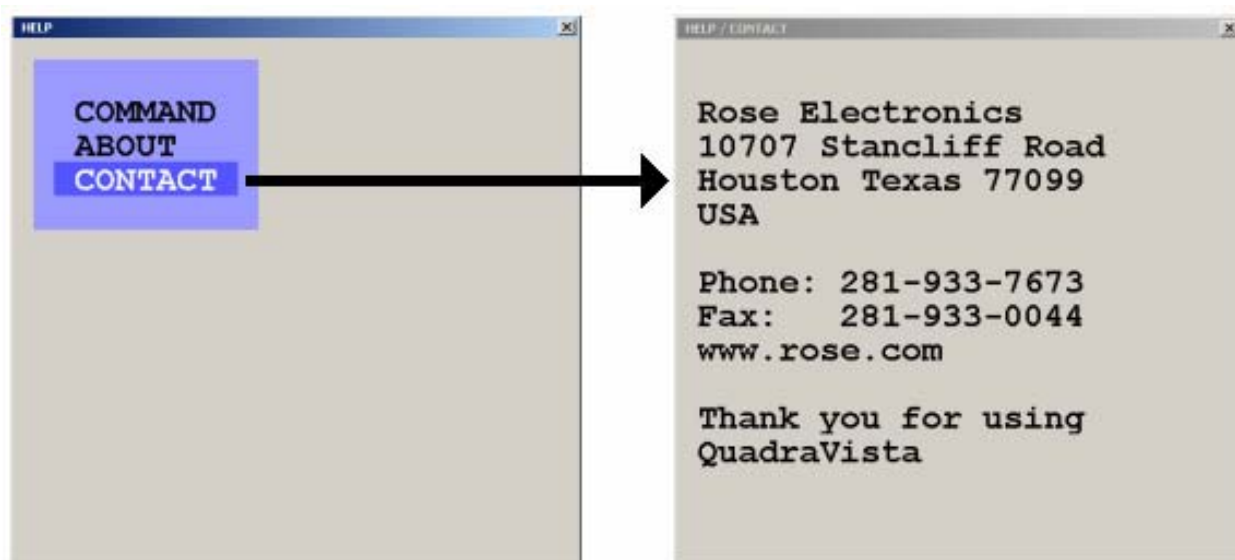
Figure 37. Help / Contact

SERIAL OPERATION

Serial Features

QuadraVista can be configured or controlled from a remote computer by connecting a serial cable from the computer's COM port to the QuadraVista's serial input port.

To remotely configure the QuadraVista (Display / execute the OSD features only), download the communication software from our web site at /www.rose.com/htm/download.htm in the tech support section and install it on a remote windows based computer. Next, call up the OSD from the local console and navigate to the "System, Control" section and change the DCP mode setting to "control".

```
SYSTEM                                    x
    HOTKEY
    HOTMOUSE
    QUAD MODE
    OSD POSITION
    OSD LANGUAGE
    SECURITY
    TEST PATTERN
    DISABLE CHANNEL
    CONTROL
```

```
SYSTEM / CONTROL                          x
    DCP mode:

           off
       >   control
           synchronize
```
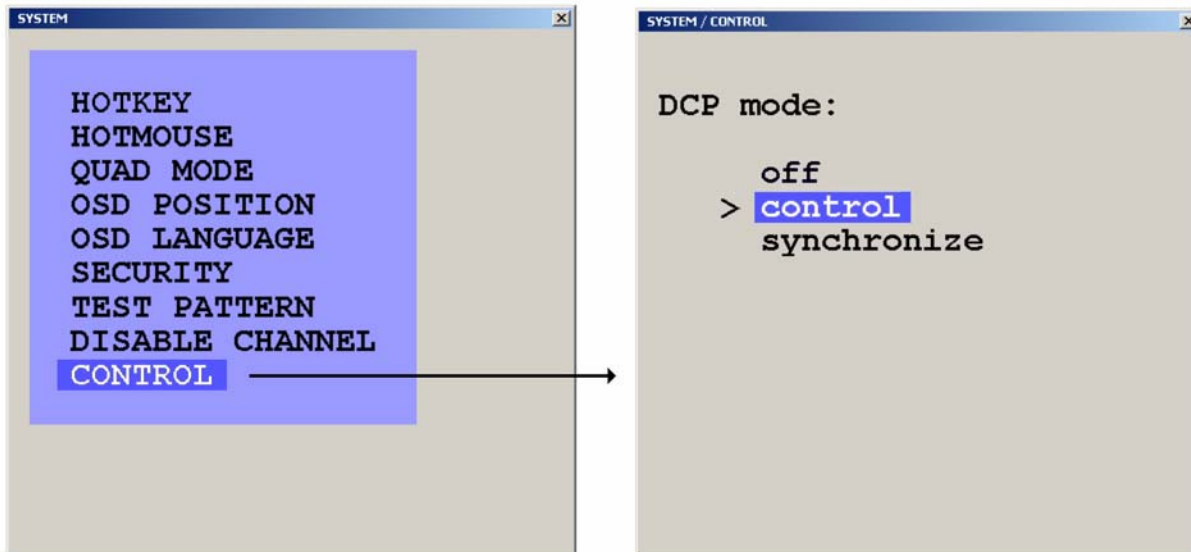
Connect a serial cable from COM1 or COM2 port on the remote Laptop or PC to the RS232 port on the rear panel of QuadraVista as shown below

Remote
Laptop or PC

Serial
Cable
DB9F to RJ45M
P/N CAB-QVRJ006

RS 232
Port
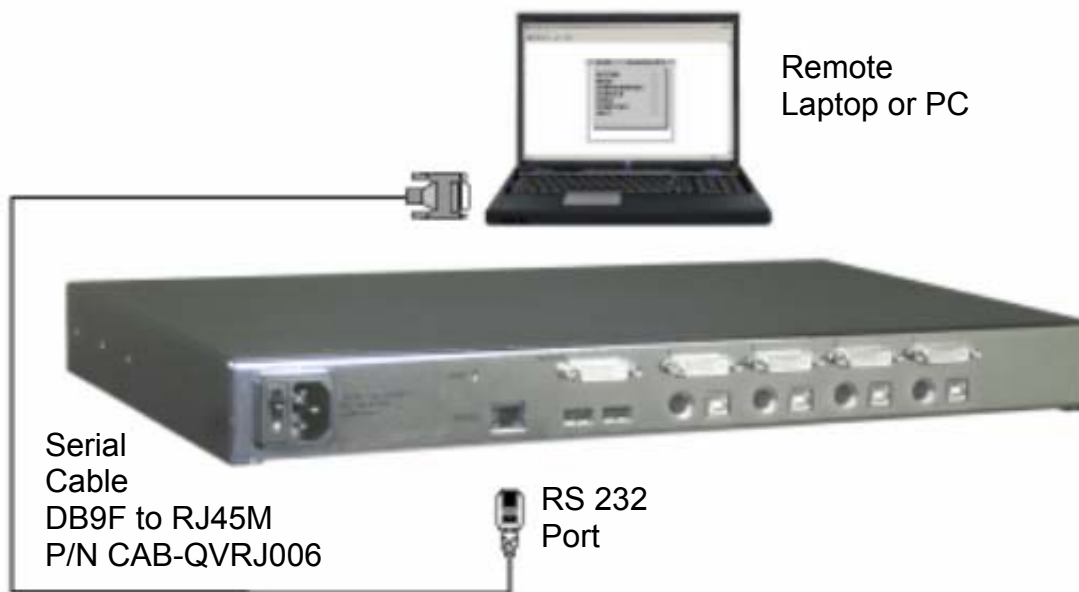
Figure 38, Serial connections

Execute the Serial Communication software and the window shown below will display.
Click on the 🡕 ICON to connect and display the OSD on the remote computer
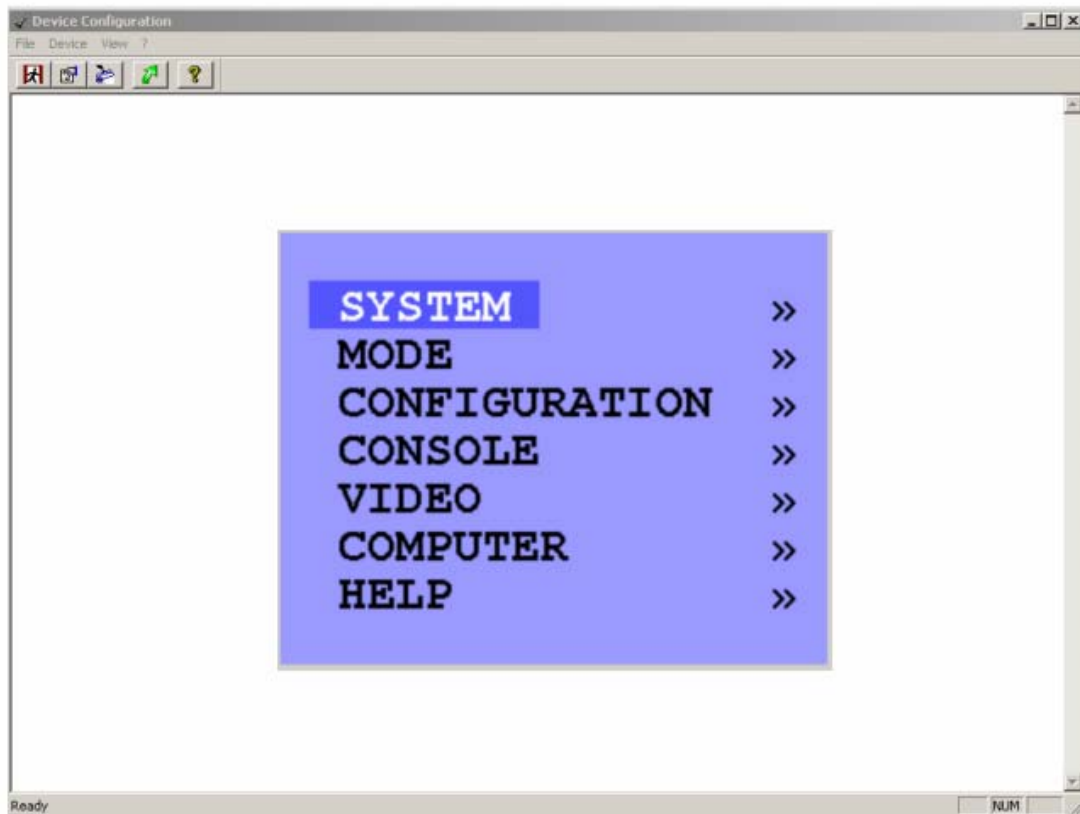
Remotely navigate within the OSD menu system from the remote computer the same way as you would using the local console. All OSD menus can be accessed using the arrow keys and the Enter / Select key.

DCP Synchronizing Multiple Units

In systems that use multiple QuadraVista's, the display mode can be synchronized so all units are the same display mode. To accomplish this, first display the OSD and navigate to the "Control" section (System, Control). Use the up/down arrow keys to select "Synchronization", then exit the OSD.

Each time you restart a V-Switch quad set to synchronization, it will send all its settings to the next connected device. This process also takes place after activating Synchronization in the OSD menu.

Connect the multiple unit system as shown below using a special "Y" serial cable.
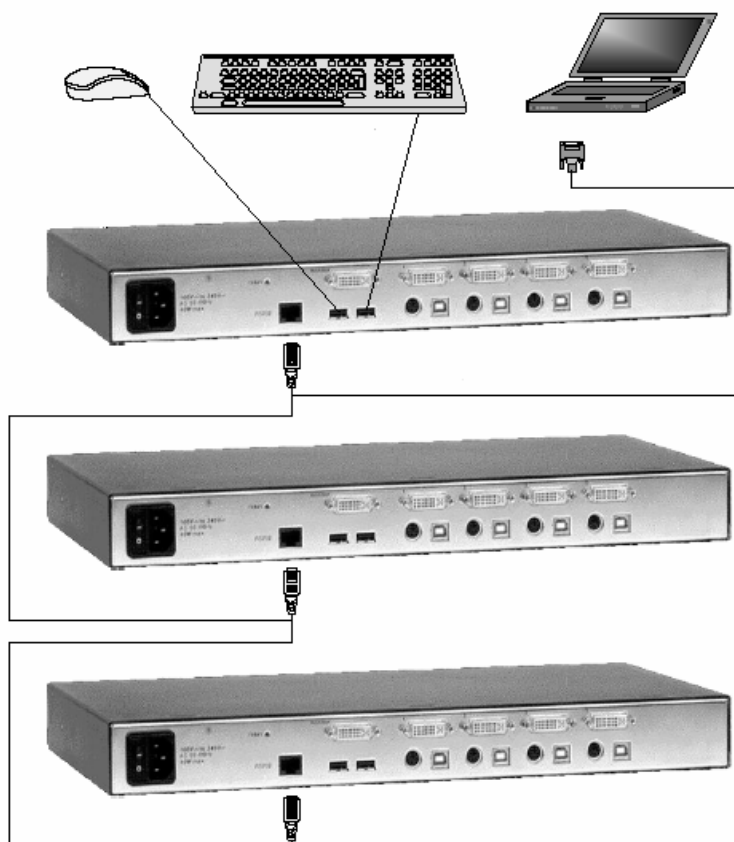
When starting a chain of devices, always start by first switching on the device at the end of the chain. When the device has completed its startup phase and sent its DCP messages, switch on the next device in the chain. Finally, switch on the first device in the chain, which synchronizes the settings of all other devices in the chain with its own settings as it starts up. The synchronized chain can have any length.

Do not connect the last unit to the first to create a loop.

DCP/XML Feature

The QuadraVista can be controlled remotely from a PC or laptop connected to the RS232 port (serial) using the DCP/XML feature. This feature is different from the OSD serial features. The serial feature allows only the OSD functions to be performed. The DCP/XML feature sends a DCP/XML message containing the defined elements like switching to a given port, changing the display mode, defining the PiP features, and other items.

To use the DCP/XML feature, connect the system in the serial configuration as shown in Figure 38. The PC or laptop must have a serial communication program installed like HyperTerminal. Configure the communication program for the following:
- Transfer rate – 57600 Baud
- Data Bits – 8
- No parity
- Stop Bit – 1
- No flow control

Connect to QuadraVista and send the DCP/XML text message containing the controlling script. A simple example of sending a DCP/XML text message that will switch ports is shown below. Tabbed spacing in the below example is for readability only; the actual text file does not need the spacing.

```
<dcp-xml>
    <device>
        <mode>
            <console>
                <channel>0</channel>
            </console>
            <video>
                <channel>0</channel>
            </video>
        </mode>
    </device>
</dcp-xml>
```

This example switches the console and video to channel 0

Note: DCP/XML channel 0 = QuadraVista channel 1
        DCP/XML channel 1 = QuadraVista channel 2
        DCP/XML channel 2 = QuadraVista channel 3
        DCP/XML channel 3 = QuadraVista channel 4

An example of a DCP/XML message containing all defined elements is shown below:

```
<dcp-xml>
    <device>
        <type>VSQ</type>
        <version>
            <dcp-protocol>1.0</dcp-protocol>
            <hardware>32</hardware>
            <software>1.30</software>
        </version>
        <mode>
            <console>
                <channel>0</channel>
            </console>
            <video>
                <channel>0</cjannel>
                <layout>full</layout>
                <pip>
                    <layout>triple-gap</layout>
                    <size>15</size>
                    <offset>5</offset>
                    <direct>
                        <channel>0</channel>
                    </direct>
                    <fixed>
                        <channel>0</channel>
                    </fixed>
                    <scan-time>1</scan-time>
                </pip>
            </video>
        </mode>
    </decide>
</dcp-xml>
```

DCP/XML System Querying

Using the DCP/XML feature, the QuadraVista can be queried to request setting information. Queries are only replied to in the DCP control mode. Sending the below text script to QuadraVista using Hyper Terminal, queries for the entire device status:

```
<dcp-xml/>
```

Queries can be combined with changes in one text script. The following is an example of querying for the console information and setting the video to channel 1.

```
<dcp-xml>
      <device>
          <mode>
              <console/>
                  <video>
                      <channel>0</channel>
                  </video>
          </mode>
      </device>
</dcp-xml>
```

The console and video are queried in the below script.
```
<dcp-xml>
      <device>
          <mode>
              <console/>
                  <video>
                      <channel/>
                  </video>
          </mode>
      </device>
</dcp-xml>
```

The response to the above query is:

```
<dcp-xml>
      <device>
          <mode>
              <console>
                  <channel>0</channel>
              </console>
                  <video>
                      <channel>0</channel>
                  </video>
          </mode>
      </device>
</dcp-xml>
```

The above response shows that the console and video are connected to channel 1.

DCP error messages:

malformed xml	Malformed XML.
tag mismatch	Opening and closing tags do not match.
tag not closed	Opening tag without matching closing tag. Only occurs with Simple Elements. In the case of Complex Elements, a timeout error is reported.
subtag in simple element	A simple element contains a subtag.
tag name too long	Tag name exceeding 16 characters.
wrong data type	Incorrect data type. For list types, such as Device Name, this error message also refers to values not included in the list.
content too long	Contents of a Simple Element exceeding 30 characters.
timeout	Receive timeout. This error message is displayed if a DCP message is not complete after expiry of the timeout, but no other error has occurred.
parser stack overflow	This error occurs when unknown elements are nested too deeply, or in the case of an internal error.
internal parser error	Internal error parser error.
unknown error	Unknown error.

DCP Communication

DCP/XML messages exceeding 38 characters must be divided into individual lines before being sent to a device.

Replies sent by a device are also divided into lines.

When sending a DCP message, the following constraints apply:

Linefeed: LF
      Linefeed (0x0A) is used as terminating character of each line.

Whitespace: TAB, SPACE, CR

Whitespace characters are TAB (0x09), Space (0x20) and Carriage Return (0x0D).

Whitespace may occur anywhere between two tags, except at the start of a line and inside simple elements

Whitespace is ignored.

Line length: maximum 38 characters

The line length may not exceed 38 characters.
(Not including the terminating LF.)

Timeout: 750 ms

Timeout for DCP messages is 750 milliseconds.

DCP messages containing errors are not regarded as completed until the timeout period has elapsed.

Therefore, it is recommended to wait for this time between DCP messages to allow the parser to handle possible errors.

Correct messages are processed immediately upon completion.

Unknown elements

Unknown tags in a DCP message are ignored for the sake of upwards compatibility of the protocol.

Messages containing unknown elements must still be syntactically correct.

Unknown tags may not be nested deeper than 5 levels.

Empty elements

An empty element is an opening tag immediately followed by a closing tag.

((tag)) may be abbreviated as ((tag))

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.

Safety

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

Safety and EMC Regulatory Statements

Safety information

⚠️   Documentation reference symbol. If the product is marked with this symbol, refer to the product documentation to get more information about the product.

WARNING   A WARNING in the manual denotes a hazard that can cause injury or death.

CAUTION   A CAUTION in the manual denotes a hazard that can damage equipment.

Do not proceed beyond a WARNING or CAUTION notice until you have understood the hazardous conditions and have taken appropriate steps.

Grounding
These are Safety Class I products and have protective earthing terminals. There must be an un-interruptible safety earth ground from the main power source to the product's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

Servicing
There are no user-serviceable parts inside these products. Only service-trained personnel must perform any servicing, maintenance, or repair.

The user may adjust only items mentioned in this manual.

Appendix A. Specifications

Resolution	1900 x 1200
Video compatibility	VGA to UXGA / DVI
Keyboard	USB / PS/2 (Computers), USB (KVM)
Mouse	USB / PS/2 (Computers), USB (KVM)
Dimensions	W- 17.125" / D – 9.125" / H – 1.75"
Weight	6.3 lbs
Approval	Europe: CE

Appendix B. Parts and cables

Part Number	Description
QV-4KVMDVI	QuadraVista unit
CAB-DVIIMMnnn	DVI-I to DVI-I (male/male)
CAB-DVIIMFnnn	DVI-I to DVI-I (male/female)
CAB-DVIIMVMnnn	VGA to DVI-I (male/male)
CAB-DVIIMVFnnn	DVI-I to VGA (male/female)
CAB-DVIDMMnnn	DVI-D to DVI-D (male/male)
CAB-USBABnnn	USB-A to USB-B (male/male)
CAB-CXUSBCnnn	DB25 to VGA/USB
CAB-CXV66MMnnn	VGA/PS2 to VGA/PS2 (male/male)
CAB-C1VS0600Cnnn	DB25 to VGA-PS/2
CAB-MD6MMnnn	PS/2 to PS/2 (male/male)
CAB-MD6M2MD6M	PS/2 "Y" cable
CAB-QVRJ006	Serial DB9 to RJ45 cable
ACC-DVIMVF	DVI-I to VGA adapter
RM-QV19	Rack Mount kit

Appendix C. Factory Defaults

The Below table shows the factory default settings. When "Factory Reset" is executed, the unit configuration is changed from the user settings to the below default settings.

Section	Function	Default Setting
SYSTEM	Hotkey Hotmouse Quad Mode OSD Position OSD Language Security Test Pattern Disable Channel Control	Ctrl + Alt On / 5 Sec. Timeout = 5 Sec. Centered English None (Level 0) None None Off
MODE	Pip Start	Size = 15%; Zoom = 1; Mode = triple; gap, Offset = 0% Quad / active channel = 1
CONFIGURE	Backup Recall Factory Reset	User initiated User initiated User initiated
CONSOLE	Video Output Keyboard Multi-Monitor EDID	Auto English Monitor 1, 2, 3, 4 = channel 1, 2, 3, 4 Display information only
VIDEO	Video Input Brightness Contrast Horiz. Position Vert. Position Screen width Phase Format	DVI / VGA (all channels) 58.2% (all analog channels) 63.5% (all analog channels) auto (all channels) auto (all channels) +0 (all channels) +0 (all channels) No (all channels)
COMPUTER	Keyboard Mouse Reset PS/2 Change EDID / DDC	N/A N/A N/A No
HELP	Command About Contact	N/A (Lists available keyboard commands) N/A (Displays unit information, version) N/A (Displays contact information)

Appendix D. Supported Video-In Formats

Mode	Resolution	Rate Analog	Rate Digital		Mode	Resolution	Rate Analog	Rate Digital
CGA	640 x 350	85	85		HDTVp	1280 x 720	-	60
CGA	640 x 400	85	85		WXGA	1280 X 768	60	60
EGA	720 x 400	70	70		WXGAp	1366 X 768	-	22-60
EGA	720 x 400	85	85		UWXGA	1280 x 960	60	60
VGA	640 x 480	60	22-60		UWXGA	1280 x 960	85	85
VGA	640 x 480	72	72		SXGA	1280 x 1024	50	50
VGA	640 x 480	75	75		SXGA	1280 x 1024	60	60
VGA	640 x 480	85	85		SXGA	1280 x 1024	72	72
SVGA	800 x 600	56	22-56		SXGA	1280 x 1024	75	75
SVGA	800 x 600	60	60		SXGA	1280 x 1024	85	85
SVGA	800 x 600	72	72		SXGA	1400 x 1050		
SVGA	800 x 600	75	75		SGI	1600 x 1024	60	60
SVGA	800 x 600	85	85-180		UXGA	1600 x 1200	50	50
XGA	1024 x 768	60	22-60		UXGA	1600 x 1200	60	60
XGA	1024 x 768	70	70		UXGAr	1600 x 1200	50	50
XGA	1024 x 768	75	75		UXGAr	1600 x 1200	60	60
XGA	1024 x 768	85	85		WSXGA	1680 x 1050		
WXGA	1152 x 864	75	75		HDTVp	1920 X 1080	-	22-24
SUN	1152 x 900	66	66		HDTVp	1920 X 1080	-	50
HDTVp	1280 x 720	-	22-50		HDTVp	1920 X 1080	-	60
HDTVp	1280 x 720	-	60		WUXGA	1920 X 1200	-	22-50
HDTVp	1280 x 720	-	22-50		WUXGA	1920 X 1200	-	60

NOTES

Server Management

Solutions