

SuperView®4K Technical Reference Guide

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RGB Spectrum 950 Marina Village Parkway Alameda, CA 94501



DOCUMENT

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CHAPTER

INTRODUCTION

The *SuperView 4K* is an eight-input multiviewer designed specifically for high-resolution 4K (ultra HD) monitors and projectors. This manual describes control by means of the command line interface (RS-232 or Ethernet).

For information on installation and operation, please refer to the SuperView 4K User's Guide.

System control for the *SuperView 4K* is provided via the RS-232 serial port or the 100/1000 BASE-T Ethernet port. The RS-232 serial connects to an ASCII terminal, any computer with a serial port, or an external device such as a touchscreen controller. Commands are sent from the terminal or computer to the *SuperView 4K*. The Ethernet port (100/1000 BASE-T) allows a *SuperView 4K* system to be connected to a local area network (LAN) or directly to a PC properly equipped with a network card.

All control interfaces use the same command line control protocol which is described in <u>Chapter 3</u> and <u>Chapter 4</u> of this manual.

Note	The <i>SuperView 4K</i> also provides a graphical user interface (GUI), the Web Control Panel (WCP). For details on this interface please see the <i>SuperView 4K User's</i>
	Guide.

1.1 Serial Control

Command line control can be accomplished using the serial port of a PC running a terminal emulator or other control device.

The *SuperView 4K* supports baud rates ranging from 9600 to 115,200, the factory default. Use the following procedure to set up communications with the *SuperView 4K* through the serial control port.

Connect your control device to the SuperView 4K RS-232 port using a serial cable with a 9-pin male connector.

L N	7	-
		-

USB-to-Serial converters are inexpensive and widely available. Use an adapter to connect your USB-equipped computer to the *SuperView 4K* serial port.



- Set the communications settings of your control device to the following:
 - Baud rate: 115,200
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: XOn / XOff
- Press the **ENTER** key (or issue a CR or CRLF)
- A prompt character ">" should be returned indicating the communications is working.

Hint If you are using a terminal, type **Help** and press the **ENTER** key to confirm the serial connection and see a list of commands.

The Tera Term program, on the product CD that includes this manual, may be used for serial control of the *SuperView 4K* from a PC.

- 1. Open Tera Term.
- 2. From the Setup menu select Serial Port.
- 3. Select the appropriate com Port.
- 4. Click OK.
- 5. From the Setup menu, select Serial Port.
- 6. Set the serial port parameters as described above.



Figure 1-1 Tera Term Serial Port Control

7. Click OK.

The window is now ready for command control.



For details on how to change the baud rate or other serial communications settings on the *SuperView 4K*, please refer to **Serial Port Commands** in **Chapter 4**.

1.2 Ethernet Control

Control over Ethernet is provided through the Web Control Panel (WCP) graphical user interface or by command line control.

1.2.1 Telnet Control

Command line control using the Ethernet requires the use of a Telnet session. The *SuperView 4K* can be connected directly to a control device or to the control device through a network.

Connection	Cabling	SuperView 4K	Controller
Point-to-Point	Ethernet hub with standard cable or no hub with crossover cable.	Use the default IP address (192.168.1.200) or assign a new address.	Assign a fixed IP address compatible with the network address of the <i>SuperView 4K</i>
Network	Standard Ethernet cable.	Change the IP address from the default to suit the network (check with system administrator)	Use a dynamic or fixed IP address to suit the network

Table 1-1 Configurations for Point-to-Point and Network Connections

	Consult your network administrator to obtain a valid IP address before commencing
	the network setup procedure. If you are going to put the SuperView 4K onto a
Important	network, you may need to change the SuperView 4K IP address prior to putting it on
	the network. You can accomplish this using the IPADDRess command from either
	the serial port or using a direct connection through the Ethernet port.

The third-party program Tera Term is provided on the product CD that contains this manual., It may be used for Telnet control of the *SuperView 4K*. Use the following procedure to set up communications with the *SuperView 4K* through the Ethernet port using Tera Term.

Connect the SuperView 4K Ethernet port to the network using a standard Ethernet cable.

OR

- Connect the SuperView 4K Ethernet port directly to the control PC.
- **1.** Open a Tera Term session.



TCP/IP	Host:	192.168.23.18	4
		History	
	Service:	Telnet	TCP port#: 8000
		O SSH	SSH version: SSH2
		O Other	Protocol: UNSPEC
Serial	Port:	COM1: Comr	nunications Port (COM1)

Figure 1-2 Initializing Telnet on Tera Term

- 2. Select TCP/IP and enter the IP address of the SuperView 4K.
- 3. Select Telnet Service.
- **4.** Enter **8000** for the *SuperView 4K* port number. (Enter the new value if the <u>IPPort</u> command has been used to change the port number.)
- 5. Click **OK**. The terminal window will open displaying the *SuperView 4K* name, copyright date, and a prompt.

👺 192.168.23.184:8000 - Tera Term VT	_ 🗆 ×
File Edit Setup Control Window Help	
SuperView 4K Copyright (c) 2007 RGB Spectrum	^
7	
	•



The window is now ready for command control.

1.2.2 Browser FTP

A browser window may also be used to transfer files, such as EDID files, to or from the *SuperView 4K* via FTP. Use the following steps:

- 1. Connect the *SuperView 4K* to the PC using the Ethernet port either directly or via a network.
- 2. Open the Windows Explorer.
- 3. Enter the address: ftp://rgb:spectrum@<ipaddress>.



- **4.** Open another browser window and navigate to the location of the firmware.
- 5. Drag-and-drop the firmware to the *SuperView 4K*.

FUNDAMENTALS

This chapter provides an overview for using the *SuperView 4K* system with a variety of configurations. The following topics are discussed:

- Image Rectangles
- Aspect Ratio
- Positioning and Clipping
- Priority Levels

2.1 Image Rectangles

CHAPTER

The resolution of raster scanned images is defined by the number of pixels per line and the total number of lines per frame. For example, the XGA format is defined as having a resolution 1024 x 768 (1024 pixels per line and 768 active lines). This convention is applied to both the input and outputs of the *SuperView 4K*. Note, however, that the output coordinate space for the *SuperView 4K* is related to the 4K monitor or projector configuration.

In windowing products, the input signal is the source image and the portion of the input signal that will be used is known as the source rectangle. This is an important point as it means the source rectangle does not necessarily have the same dimensions as the input signal resolution.

The destination rectangle defines the size and position of the window displayed on the output.

A source rectangle selects a rectangular portion of a full size input. Typically, the source rectangle contains the entire source, but it can also contain a cropped portion.

This portion fills the destination rectangle (as described below), and appears in a window on the display device. The *SuperView 4K* automatically changes an input's source rectangle as various zoom and pan controls are used to manipulate portions of the full-size image.

A destination rectangle specifies the output window's size and screen position on the monitor or projector. The content of the window is defined by the source rectangle's parameters.

The setting of the source rectangle is accomplished using the <u>WINdowSouRCeRECTangle</u> or <u>WINdowSouRCeRECTangleRELative</u> command. Use the commands <u>WINdowDESTinationRECTangle</u> and <u>WINdowDESTinationRECTangleRELative</u> to specify the destination rectangle.



2.1.1 Window Source Rectangle

The *source rectangle* for each input is defined in terms of the image's pixel position in coordinate space. The image's top left corner is positioned using these coordinates, and the image's width and height are defined in the same way.

In the example shown in <u>Figure 2-1</u>, the full size source image is 1920 pixels wide by 1080 lines high.



Figure 2-1 Full Size Source Image

By convention, the upper left corner starts at pixel coordinate (0,0). The bottom right corner ends at coordinate (1919,1079). When using the *SuperView 4K*, the Window Source Rectangle (WSR) command uses the following convention to define a window source rectangle:

x, y, width, height

The x and y parameters define the coordinates of the first pixel located at the top left of the image. The width and height parameters then define the size of the image. This convention is used in the command line interface with the WSR command which sets the source rectangle for the selected input.

Thus, to define (and use) the full size picture from <u>Figure 2-1</u> as the window 1 source, the command would be:

WSR 1 0 0 1920 1080

In the second example below, a portion of the full size source image has been defined.



Figure 2-2 Portion of Full Size Image



The cropped image is 800 pixels wide by 600 lines high. The upper left corner starts at pixel coordinate (980,250). The bottom right corner ends at coordinate (1779,849).

Thus, to define (and use) the cropped size picture from **Figure 2-2** as window 1 the command would be:

WSR 1 980 250 800 600

2.1.2 Window Destination Rectangle

Each window's *destination rectangle* is defined in terms of the final space it will occupy on the 4K monitor or projecter rather than the input (source) coordinates. Each destination rectangle represents the source rectangle mapped to a specific size and position on the display.

In the example below, the display monitor is 3840 x 2160. The full size source rectangle from **Figure 2-1** is mapped to a destination rectangle, starting at coordinates (0, 0), with a horizontal width of 1920 pixels and a vertical height of 1080 lines.



Figure 2-3 Full Size Source Mapped to Destination

The Window Destination Rectangle (WDR) command defines the window displayed on the output in terms of both position and size. Thus, to map the full size picture from <u>Figure 2-3</u> to a destination rectangle the command would be:

WDR 1 0 0 1920 1080

In the next example, the cropped image from <u>Figure 2-2</u> is mapped to a new destination space on the display device.







In this case the command would be:

WDR 1 0 0 800 600

By this means, we can take a portion of the source image and without resizing, place it anywhere on the display wall. By changing the destination size parameters to 1920 x 1080 the cropped image is stretched, changing its aspect ratio.



Note

This is effectively zooming into a section of the source image.



2.2 Window Groups

Up to four windows may be placed in a group. When grouped, the windows can only be moved or sized as a group. A group is defined by its **Anchor Window** and **Type** (dimensions). Available window types are: 1x2, 1x3, 1x4, 2x1, or 2x2. <u>Table 2-1</u> shows examples of two window group types.

Туре	Anchor Window	Grou	p Arran	gement
1x3	1	1	2	3
2x2	4	4	5	

 Table 2-1
 Group Examples

- There can be up to four separately defined groups, numbered 1–4.
- A window can only be in one active group at a time.
- The first window number of a group (**Anchor Window**) must be specified; the remaining positions of the group are automatically populated by consecutive numbered windows.
- Prior to grouping, labels and borders can be enabled for each window within a group. Labels and borders cannot be applied to a group of windows.

Commands used to create and control window groups are: <u>WINdowGROUP</u>, WINdowGROUPCLEAR, and WINdowGROUPDESTinationRECTangle.

2.3 Aspect Ratio

As you learned in the previous sections, the source rectangle selects any rectangular portion of an input. This source can then be displayed (mapped) in a destination rectangle — in an identical or different sized window. Please note:

The destination rectangle can be set to any shape and any size on the wall. The size and shape of the source rectangle are independent of the destination rectangle's dimensions.

Suppose that you have defined an input's source and destination rectangles so that a 320 x 240 portion of a video source image is mapped into a 640 x 480 window. Here, the destination rectangle is larger than the source rectangle, but it has the same shape and the same width-to-height aspect ratio (4:3). Thus, the original input is enlarged (scaled) equally, in both dimensions.



Varying the destination rectangle's size but preserving its aspect ratio makes the displayed image larger or smaller. As long as its proportions correspond to those of the source rectangle, the output image resembles the input image.

If you independently vary the shape of either the source or destination rectangle, so that their aspect ratios are no longer the same, the displayed picture will appear stretched or squeezed as compared to the original image.

2.4 Positioning and Clipping

A window can be positioned anywhere on the output display. If the window's destination rectangle is defined so that a portion is off the screen, that portion is said to be clipped.

Two examples of image clipping are illustrated below. In the <u>Figure 2-5</u>, the full size source rectangle (1920x1080) is mapped to a destination rectangle, starting at (960,0). The right-hand portion of the source image is clipped.



Figure 2-5 Clipped Image, Screen Right

In the second example, the same source rectangle is mapped to a destination rectangle starting at (-100,-100). By specifying screen coordinates with negative values, the left and top edges of the source image can be clipped. Note that the origin (top left corner) of the WDR can have either negative or positive values, but the height and width must always be positive values.







2.5 Priority Levels

The *SuperView 4K* uses the **Priority** function to determine which of several overlapping windows are visible. You can change the priority levels of windows so that different ones come into the foreground and others move to the background. When windows overlap, their relative visibility depends on their respective user-assigned priority levels.



Figure 2-7 Image Priorities

In the example above, window 2 has priority over the other windows, and overlays any window with a lower priority.

Please note:

The available levels are 1 through 8, where 1 represents the highest priority.



- The window with the highest priority is the one that is displayed on top. Lower priority windows are stacked beneath it.
- Only the overlapped region of a window is actually obscured by a higher priority window.
- No two windows may have the same priority.
- If a window's priority is increased, the window previously holding that priority is automatically demoted by one level.
- Promoting (or demoting) one window leaves the priorities of the other windows unchanged relative to each other.

CHAPTER 3 COMMAND LINE CONTROL

This chapter provides an overview for using the *SuperView 4K* video processor with a variety of configurations under the control of an external system. This is accomplished using the command line interface which is accessible from the RS-232 and the Ethernet port (see <u>Chapter 1</u>).

		1.
LV.	(🛯)	1111
LL	9	6.0

Most examples used in this chapter have hyperlinks that take you directly to the description of the command in <u>Chapter 4</u>.

The *SuperView 4K* accepts ASCII commands. The majority of commands can be used to both set a parameter as well as query the current parameter value. This combination provides a convenient way to test commands using keyboard entry.

	In the following examples, for simplicity, the Carriage Return (ENTER on a PC
Note	keyboard) that is required to terminate each command is not shown. Be sure to
	terminate each command by pressing ENTER.

See <u>Chapter 4</u> for a full discussion of command syntax and a complete description of all available commands.

3.1 Setup

There are a few setup adjustments that must be completed before you are ready to operate the *SuperView 4K*. The following is a brief list of items that can be used to get you going quickly. For more information please refer to the set up section of the *SuperView 4K* User's Guide.

3.1.1 Output Link Type

The **OutPutLINKTYPE** command informs the *SuperView 4K* about how the outputs are being used between single and dual-link mode

Example	Set the output type to dual-link:
Example	oplinktype dual



3.1.2 Window Configuration

The <u>WINdowSouRCe</u> command is used to specify the source of each window.

Frample	Set the source for window 3 to RGB 3:
Example	winsrc 3 rgb 3

3.1.3 Input Settings

Input timing may be modified, saved, and loaded using the commands described in <u>Input</u> <u>Commands</u>. Input cable equalization is also discussed in this section.

3.1.4 Output Format

The SuperView 4K supports a wide variety of 4K monitors and projectors. You must identify the format of the signal that the displays require. This can be automatic to match the device you are using, or you can set it manually. Automatic output configuration is available only for devices that support DVI EDID.

To automatically set timing use the command OutPutREFerence

Fxample	To turn the DVI EDID output mode on, use the command:
Example	opref edid

If your 4K monitor or projector does not support EDID, then you will have to set the output format manually.

Note	When using an external EDID emulator or UTP extenders, make sure they are set the same.

To manually set the output format use the command **OutPutTiMingLOAD**.

To turn off the automatic mode you will have to use the **OutPutREFerence** command as in the following example.

Example	To turn the DVI EDID output mode off and use timing list values, use the command:
	opref int

Note that the **OutPutTiMing** command query will respond with **Auto_EDID** when set automatically.



A number of popular formats are provided in the output format list. This list contains predefined and user defined output formats. See <u>Factory Timing List</u> in <u>Chapter 4</u>. If you do not find an entry that suits your display you can enter new timing parameters using the command <u>OutPutTiMing</u>. You can also create a new timing entry using the command <u>OutPutTiMingSAVE</u>.

Example	To load a timing entry for displays with native resolution of 1280 x 1024 (60 Hz), the entry in the timing list that matches this is 35. Use the command:
	optmload 35

The output link type may be reported using the **OutPutLINKTYPE** command.

See **Output Commands** for additional information.

3.1.5 Input Adjustment

The SuperView 4K automatically locks to signals connected to the input ports. When a new signal is connected to the SuperView 4K, it will automatically search for a match between the signal and the internally stored timings. This list consists of the combination of standard defined signals and user defined signals. If the signal found in the list is an exact match, then no further adjustment is needed.

However, if some adjustment is required, then use the information and commands listed in the **Input Commands** section. You can also save the new parameters to the user list. In this way, the next time the same signal is connected, no adjustment will be required. User timing sets can be saved, listed, deleted, and cleared using the **Timing List Commands**.

If you need more information about making input adjustments please see the *Setup* and *Advanced Setup* sections in the *SuperView 4K User's Guide*.

3.2 Windows

The following sections describe the manipulation of windows displayed. This includes the selection of input source, window size and position, contrast and brightness, zoom and pan. If you are not familiar with the manipulation of windows using source and destination coordinates please refer to **Chapter 2** on page 6.

3.2.1 Window Visibility

The ability to hide or show any window is provided by using the <u>WINdowENable</u> command. This command may be applied to individual windows or all windows simultaneously.

Note that hiding a window does not prevent other commands from being applied to the window. For example, it will still be possible to select window inputs, position the window, size the window or change its priority even when the it is not visible.



Examples	Show window 4, use the command:
	winen 4 on
	Hide all the windows, use the command:
	winen all off

3.2.2 Identifying a Window

When many windows are displayed on the output display, it may be difficult to identify the position of specific windows. The <u>WINdowIDentify</u> command provides a means to locate the position of specific windows even when the window is disabled or obscured by another window having a higher priority level.

Example	To identify window 7, use the command:
	winid 7

The function flashes the specified window on and off for a short period of time and automatically cancels.

3.2.3 Selecting a Window Input

The input number and input type must be specified for each window using the **WINdowSouRCe** command.

Examples	To set the source for window 3 to DVI input 3, use the command:
	winsrc 3 dvi 3
	To display the source for all windows, enter:
	winsrc all

3.2.4 Window Size and Position

The size and position of each window can be changed dynamically using different commands.

WINDOW DESTINATION RECTANGLE

The <u>WINdowDESTinationRECTangle</u> command provides a single command that can be used to size and position each window anywhere in the output space.

The WDR command allows the user to define the position of the upper left corner of the window as well as the height and width of the window. A complete description of this is provided in the section in <u>Chapter 2</u>.



Example	Position window 2 to the top left corner of a 2048 x 1536 display and size it to 1/16th of the total space. Use the command:
	windestrect $2,0,0,512,384$

The WDR command is useful to position and size the window in absolute terms. The ability to set the height and width independently also provides the ability to set the aspect ratio of the window. If you wish to keep the aspect ratio constant, be sure to calculate the height to correspond with the width you are setting (or vice versa).

SIZE AND POSITION

It is sometimes convenient to resize and position the window relative to its current situation. The commands <u>SIZE</u> and <u>POSition</u> offer the ability to move and resize a window relative to the current size or position it either directly or interactively. Note that the <u>SIZE</u> command changes the size without affecting the aspect ratio.

The <u>SIZE</u> command changes the height of the window while the width is changed by an amount calculated automatically to maintain the aspect ratio of the window. For example, when a window with an aspect ratio of 4:3 changes by 3 lines, the width would change by 4 pixels.

The size of the change for the Position command is determine by the **<u>SETRATE</u>** command.

The interactive size command accepts several variables:

- (window number)
- **s** = decrement the window size
- I = increment the window size
- **q** = quit (exit interactive size mode)

	To interactively size window 1 smaller, use the command:
Example	size 1 Then press the ${f s}$ key to make the size smaller with each repeated press of the key.
	Press the q key to quit interactive size adjustment.

The direct size command also accepts several variables:

- (window number)
- **s** = decrement the window size
- I = increment the window size
- **repetition** (1...100) = amount of the increment or decrement



Example	To directly reduce the size window 1 by 10 lines, use the command:
	size 1 s 10
	The position command changes the position of the window in both a direct (immediate) and interactive mode.
	The interactive position command accepts several variables:
	 (window number)
	■ i = move up
	■ m = move down
	■ j = move left
	I = move right
	 q = quit (exit interactive position mode)
	To interactively move the position down for window 1, use the command:
Example	Then press the \mathbf{m} key to position the window down with every key press.
	Press the q key to quit interactive position adjustment.
	The direct position command also accepts several variables:
	 (window number)

- i = move up
- **m** = move down
- j = move left
- I = move right
- **repetition** (1...100) = amount of the movement

Example	To directly move the position of window 1 by 10 lines to the left, use the command:
Example	pos 1 j 10

Also see AspectRatio, SETRATE, and FullScreen commands.

3.2.5 Window Groups

Two to four windows may be grouped together. When grouped, size and position commands are applied to the group; individual window size and position cannot be modified while it is within a group.



- <u>WINdowGROUP</u> Creates a group specifying the group number, type and anchor window.
- WINdowGROUPCLEAR Clears the specified group.
- WINdowGROUPDESTinationRECTangle Sets the size and position of the designated group.

	To create group 1 of 2x2 windows 2, 3, 4, and 5, enter the command:
	wingroup 1 2x2 2
Example	To position group 1 at the upper, left-most corner of the display with the group measuring 1280 by 1024 pixels, type:
	wingroupdestrect 2 0 0 1280 1024

3.2.6 Window Layout

Windows may be arranged to factory default layouts with the <u>WINdowLAYOUT</u> command. The <u>WINdowLAYOUTLIST</u> command may be used to display the position and size of each window in a layout.

Example	Arrange the windows as in layout 3 with window 2 in position 1, and subsequent windows in sequence.
	winlayout 3 2 3 4 5

The <u>WINdowLAYOUTLIST</u> command reports the position and size of each window for the specified layout as a fraction of the output timing. <u>Table 3-1</u> shows the results for listing the window layout 5.

Table 3-1	Layout 5 Window Size and Position
-----------	-----------------------------------

Window	X	У	Width	Height
1	0.000000	0.000000	1.000000	1.000000
2	0.000000	1.000000	0.500000	0.500000
3	0.500000	1.000000	0.500000	0.500000
4	0.000000	1.500000	0.500000	0.500000
5	0.500000	1.500000	0.500000	0.500000
6	1.000000	0.000000	1.000000	1.000000
7	1.000000	1.000000	1.000000	1.000000





Figure 3-8 Window Layouts 0 through 11





Figure 3-9 Window Layout 12

3.2.7 Overlapping Windows

Every window can be positioned anywhere on the output. This includes positioning a window on top of another window. In this case, one window will obscure all or part of the other window (or windows). Overlapping windows are layered according to a user defined priority setting. The layer that will appear in front of all other windows has the highest priority, level one (1). The lowest priority window will be obscured by any of the other windows.

The **PRIority** command is used to set the priority level of one or all windows. When setting the priority of one or more windows, please note that the absolute priority of other windows may be changed. Without arguments, the command reports the priority of windows 1 through 8.

	To change the command:	priority level of w	indov	v 4 fr	om p	riority	/ leve	el 1 to	prio	rity le	vel 5, use the
		pri 4 5									
	Set the priority level of a series of windows using a list of windows in priority order. Establish the priority level of windows according to the following table.						riority order.				
Examples		Priority Level	1	2	3	4	5	6	7	8	
		Window	3	4	1	2	6	5	7	8	
	Note that it is n	ot required to sp	ecify	the o	curre	nt pri	ority	level			
	Use the comma	and:									
		pri all 3 4	12	65	78						

3.2.8 Zoom and Pan Within a Window

The ability to zoom the image in a window is provided by the <u>ZooM</u> command, which supports both interactive and direct modes of control. The ability to cancel a current zoom setting is provided by the <u>UNZOOM</u> command. Additionally, you can use the <u>PAN</u> command to select the image within the zoomed window.

The direct zoom command accepts several variables:



- (window number)
- i = zoom in
- o = zoom out
- **repetition** (1...100) = amount of the movement

	To zoom out of the image within window 3 by 25 steps, use the command:				
	zm 3 o 25				
Evamples	To zoom in (magnify) the image within window 3 by 50 steps, use the command:				
Examples	zm 3 i 50				
	To reset a zoom for window 3, use the command:				
	unzoom 3				

The interactive zoom command also accepts several variables:

- (window number)
- i = zoom in
- o = zoom out
- **q** = quit (exit interactive position mode)

	To interactively zoom in (magnify) the image within window 3, use the command:
Example	Zm 1 Then press the i key to zoom the window in with every button press. Press the q key to quit interactive position adjustment.

The interactive pan command accepts several variables:

- (window number)
- i = move up
- **m** = move down
- j = move left
- I = move right
- **q** = quit (exit interactive position mode)



Example	To interactively pan window 1 down, use the command: pan 1 Then press the m key to pan the window down with every button press. Press the q key to quit interactive pan adjustment.
The di	irect pan command also accepts several variables:
•	(window number)
•	i = move up

- **m** = move down
- j = move left
- I = move right
- **repetition** (1...100) = amount of the movement

Example	To directly pan window 1 by 10 lines to the left, use the command:
	pan 1 j 10

The <u>WINdowSouRCeRECTangle</u> and <u>WINdowSouRCeRECTangleRELative</u> commands provide a more powerful tool to zoom and pan within a window. The <u>WINdowSouRCeRECTangle</u> command provides the ability to select a portion of the image in the source coordinate space. For example, to zoom by a factor of two you could choose to select only 50% of the source image. The *SuperView 4K* will then automatically scale the source image to fit in the appropriate window.

For other general information about the WSR, refer to page 6.

3.2.9 Adjusting Image Quality

The image quality of each window can be adjusted independently but cannot be modified when grouped. Image parameters include:

- BRIghtness
- CONTrast
- <u>HUE</u>
- <u>SATuration</u>
- SHARPness



The following table lists the value ranges for these commands.

Command	Minimum	Maximum	Default
Brightness	-500	500	0
Contrast	0	200	100
Hue	-180	180	0
Saturation	0	200	100
Sharpness	-10	10	0

Table 3-2 Image Quality Value Ranges

Note that a gamma adjustment is also provided but, unlike the commands above, is applied to all windows simultaneously (**GAMma**).

	To set the brightness of RGB input 8 to 10 steps below nominal (default = 0), use the command:
Examples	bri rgb 8 -10
	To increase the contrast of DVI input 6 to 10% above nominal, use the command:
	cont dvi 6 110

3.2.10 Window Borders

A colored border can be applied independently to each window using the <u>WindowBorderWIDTH</u> command. The border width can be set to a value between 0 and 100.

	To set the width of the border displayed around window 6 to 30, use the command:
	wbwidth 6 30
Example	Note that the width of the vertical border will be set to 30 pixels and height of the horizontal border will be set to 30 lines. Note also that the image will be automatically scaled down so that the size of the window plus border is maintained at the size defined by the WDR command.

The color of the border can be set using the <u>WindowBorderCOLOR</u> command. The border can be set to a standard color (black, white, red, green, blue, yellow, magenta, or cyan). Borders within a group cannot be modified.



Example	To set the color of the border displayed around window 4 to red, use the command:
	wbcolor 6 red

As an alternative, the border color can be set as a custom color by specifying the color in terms of the red, green, and blue components (three 8-bit values).

Example	To set the color of the border displayed around window 4 to red = 192, green = 128, blue = 64, use the command:
	wbcolor 4 192 128 64

3.2.11 Window Labels

Each window can be visually identified on the output display by a unique user defined name using the <u>WindowLabelNAME</u> command. A name can be up to 23 characters in length and includes numeric, alphabetic (upper and lower case) space and punctuation characters. Note that a name is associated with the input source that is appears in the specific window.

Example	Set the name "DVD Player 1" for window 3 using the command:
Example	wlname 3 DVD_Player_1

Note	To clear label text enter an empty text string by using a null quote string: ""
	This also applies to Timing and Preset names, Host name, etc.

DISPLAYING A WINDOW LABEL

Labels can be displayed independently for each window using the <u>WindowLabelENable</u> command. Labels can be turned on or off individually or can be turned on or off simultaneously for all windows using the optional ALL argument.

Frample	To display all window labels, use the command:
	wlen all

POSITIONING A WINDOW LABEL

Labels may be positioned above or below the window using the <u>WINdowLabelPOSition</u> command. You must specify the window number (or ALL) for which you are positioning the label and the position. See the table below for the possible arguments for this command.



To position the text to the left, center or right of a window use the <u>WindowLabelJUSTification</u> command. You must specify the window number for which you are positioning the label and the justification position. See the table below for the possible arguments for this command.

Table 3-3 Window Label Position and Justification Values

Command	Values
WindowLabelPOSition	Top, Bottom
WindowLabelJUSTification	Left, Right Center

	To set the label position for window 2 to the bottom, use the following command:
	wlpos 2 bottom
Examples	To set the label justification to place the label to the left side of window 4 use the following command:
	wljust 4 left

WINDOW LABEL FONT SIZE

The size of font used for each label can be set using the <u>WindowLabelSIZE</u> command. Two sizes of font are available: normal and large.

Example	To set the size of window 3 label text to large, use the command:
Livalliple	wlsize 3 large

WINDOW LABEL TEXT COLOR

The color of text used for the label is set using the <u>WindowLabelCOLOR</u> command. The label is displayed on top of a colored background that is automatically sized to match the length of the label. The color of this background can be set independently of the label color by using the <u>WindowLabelBackGroundCOLOR</u> command.

There are several color choices:

- Manual entry of Red, Green, and Blue (RGB) values with a range of 0-255.
- Pre-defined color values of White, Yellow, Cyan, Green, Magenta, Red, Blue or Black.


Examples	To set the color of the label text for window 3 to cyan, use the command:
	wlcolor 3 cyan
	To set the color of the label background for window 3 the custom color red = 100, green = 200, and blue = 50, use the command:
	wlbgcolor 3 100 200 50

3.2.12 Window Presets

The settings of parameters such as window source, position, labels and so on, can be saved to preset registers for recall later. There are a total of 50 preset registers available for this purpose.

CREATING A WINDOW PRESET

A window preset is created using the current state of the *SuperView 4K*. First, set up the *SuperView 4K* to give the output that you require and use the command **WindowPresetSAVE** to save the settings to the specified preset register.

Example	To save the current SuperView 4K settings to register 19, use the command:
	wpsave 19

DELETING A WINDOW PRESET

If you save a preset to a register that is already being used, the contents will be overwritten. A message is issued requesting confirmation before this is accomplished. If you wish to delete the contents of a preset, use the command **WindowPresetDELete**.

Example	To delete the contents of preset 12, use the command:
	wpdel 12

This will delete the contents of preset 12 including the window preset name.

DELETING ALL WINDOW PRESETS

To delete the contents of all window presets, use the command **WindowPresetLISTCLEAR**.

NAMING WINDOW PRESETS

Each window preset is numbered (1...50) but all presets may be assigned a name to make the identification of the contents easier. For example, you may have a preset that selects all the analog inputs for the RGB inputs named "Analog RGB inputs," and another preset may turn on borders and labels for all the windows and be named "All Borders On." Use the <u>WindowPresetNAME</u> command to give a name to the specified preset.



	Example	To name window preset 21 "Normal Set Up," use the command:
	Example	wpname 21 Normal_Set_Up
	L L V	ISTING WINDOW PRESETS Jse the <u>WindowPresetLIST</u> command to report one or all presets. <u>VindowPresetLISTNAME</u> will display the name and number of all active presets.
3.3	Window Gr	oups
	Up to four wi functions. Us group, the gr	ndows may be combined to form a group. Three commands support window group the WINdowGROUP command to create a group by specifying a number for the oup configuration, and the group window members.
	Note	Group members must be numerically sequential windows.
	The position WINdowGR(coordinates, To clear an e	and size of the group display is defined using the command <u>DUPDESTinationRECTangle</u> . The command uses the group number, starting position and the X and Y size of the destination rectangle. xisting group, use the WINdowGROUPCLEAR command.

3.4 Clock

A foreground clock can be displayed anywhere on the output device. The clock always has the highest priority and therefore appears on top of any window. Four commands are used to set clock parameters.

3.4.1 Setting Clock Attributes

The clock has attributes of color, size, position and format.

The color of the clock display can be chosen from a pre-defined list (white, black, red, green, blue, magenta, cyan, yellow) or as 3 values representing the red, green, and blue (RGB) components of the color space. The <u>CLOCKCOLOR</u> command is used set the clock display color.



Example	To set the clock color to the RGB coordinates 255, 128, 16, use the command:
	clockcolor 255 128 16
	To set the color of the clock to blue, use the command:
	clockcolor blue

The 12/24 hour time format can be set using the **CLOCKForMaT** command.

Example	To set the clock format to 12 hours, use the command:
	clockformat 12

Set the position of the clock using the **CURSORPOSition** command.

Example	To set the clock at coordinates X = 1000 and Y = 200 enter the command:
	clockpos 1000 200

The size of the clock can be set to normal or large.

Example	To use the large clock, enter:
	clocksize large

3.4.2 Enabling the Clock

The **<u>CLOCKENable</u>** command turns the clock on or off and sets the size of the clock.

Example	To turn off the clock, the command should be:
	clocken off

3.4.3 Clock Synchronization

The system clock can be synchronized to a network time server, NTS. Three commands are used to define synchronization: **NTSIP**, **ClockSYNC**, and **ClockSYNCPERiod**.

Up to three IP addresses may be entered for network time servers using the command **NTSIP**.



Example	Specify the server at IP address 192.168.1.250 for synchronization.
	ntsip 192.168.1.250
Clock	synchronization is enabled or disabled using the ClockSYNC command.

Example	To disable clock synchronization, enter the command:
	csync off

The internal clock can be synchronized from every 30 minutes to once a day by entering a time in minutes using **ClockSYNCPERiod**.

Example	To synchronize the clock twice a day, every 12 hours, use the command:
	csyncper 720

3.5 Cursor

Three commands are used to specify and enable an on-screen cursor. The cursor type may be set to a double-ended arrow pointing right/left, up/down, northeast/southwest, or northwest/southeast or to a single-ended pointer using the <u>CURSORTYPE</u> command. The X and Y coordinates of the cursor are defined by the <u>CURSORPOSition</u> command. Finally, the cursor is enabled or disabled with the <u>CURSORENable</u> command.

	To enable an up/down cursor at X= 1500 and Y = 800 three commands must be entered:
Example	cursortype 1 ud
	cursorpos 1 1500 800
	cursoren 1 on

Please note that while the cursor number must be specified, only cursor 1 is supported.

3.6 EDID

The *SuperView 4K* maintains a list of EDID values. Entries 0 through 10 are reserved for factory EDID; entries 11 through 60 are available for user imported or captured EDID. A hot plug event on any DVI or HDMI input can be initiated with the **FORCEHotPlug** command; this can be useful to wake-up a computer under KvM control or for diagnostic purposes.



Example	To force a hot plug event on DVI input 1 for 100 xxx, enter the command:
	forcehp dvi 1 100

EDID on output 1 may be captured saved to a list entry by the <u>EdiDCAPture</u> command. <u>EdiDLIST</u> may be used to list one or more table entries. A single user entry on the EDID list can be removed with the <u>EdiDDELete</u> command. <u>EdiDNAME</u> may be used to name a user EDID on the list.

	To save the EDID on output 1 to list entry 21 type:
	edcap 21
Examples	To report EDID list entries 1 through 10, use the command:
	edlist 1 10
	To delete user EDID list entry 30, type:
	eddel 30
	To name EDID list entry 15 XENA, enter:
	edname 15 XENA

Use <u>EdiDINFO</u> to display EDID information about an input port or output port. EDID from the list can be loaded for one or all inputs of a type, DVI or HDMI, using the <u>EdiDLOAD</u>. Similarly, the EDID on one or all inputs of a type can be restored to the factory default using the command <u>EdiDRFD</u>.

	To report the EDID on HDMI input 3, type:
Examples	edinfo hdmi 3
	To load EDID list entry 3 to all DVI inputs, use the command:
	edload dvi all 3
	To restore the EDID on HDMI input 6 to the factory default, type the command:
	edrfd hdmi 6

An EDID list entry may be saved to a file for transfer to a PC with **EdiDEXPORT** or imported from a file with **EdiDIMPORT**. See **Browser FTP** for instructions on transferring files between the *SuperView 4K* and a PC.



Examples	To export EDID list entry 16 to a file called EDID16, enter the command:
	edexport 16 EDID16
	To import the EDID in the file MonitorABC to list entry 12, type:
	edimport 12 MonitorABC

3.7 Custom Timing

Timing list commands are used to manage custom timings. <u>TiMingLISTLOAD</u> is used to create a set of timing values and add it to the Timing List. <u>TiMingLIST</u> reports the parameters of one or more entries in the Timing List. <u>TiMingDELete</u> is used to delete a single user-defined list entry while <u>TiMingLISTCLEAR</u> deletes all user entries.

3.8 Network Settings

Please see <u>Network Commands</u> for further information.

3.9 Serial Communication

The three commands which set serial communications parameters, **<u>BAUDrate</u>**, <u>**ECHO**</u>, and <u>**HANDShaking**</u>, can be found in section <u>**Serial Port Commands**</u>. The appropriate changes must also be made to the controlling device for serial communication to be restored.

3.10 Macros

A macro is a set of tasks grouped together so that you can execute them together with a single command. This type of capability is supported in the *SuperView 4K* command set and is useful if you have the need to frequently make the same type of set up changes to the system. This section deals with using the *SuperView 4K* macro capability.

There are a number of commands associated with the use of macros that are available in the command line interface. Click on the links below to see a description of a command and its syntax (see <u>Chapter 4</u> beginning on <u>page 37</u>).

- MACROABORT
- MACRODELete
- MACROABORT
- MACROPAUSE
- MACRORESUME



MACRORUN

■ MACROSAVE

Examples for the use of these commands are shown in the following section.

A SuperView 4K macro is a list of commands stored in an ASCII text format. The commands that can be used consist of the complete command set listed in Chapter 4. Note that commands can be grouped together for execution simultaneously or executed sequentially by separating them with a carriage return/line feed.

We will go into details later, but just to take a look at what a macro looks like, here are a couple of examples of a macro showing the syntax associated with both the simultaneous and sequential commands.

Example	To enable only windows 2, 3, and 4 and turn all other windows off, use the following commands:
	winen all off winen 2 on; winen 3 on; winen 4 on

The macro begins by disabling all windows, and then turning each of the specified windows on. The windows are enabled together.

3.10.1 Creating Macros

Macros consist of a number of ASCII commands stored in a text file. Macros cannot be created directly in the *SuperView 4K*. Macros are created as text files from a suitable text editor and copied to the *SuperView 4K* using FTP (see <u>Downloading Macros</u> in the following section). The file name can be up to 256 characters in length, and may contain lower and upper case alphabetical characters as well as numerals. The use of the space character is not allowed; use the underscore character "_" in place of the space.

There are no requirements for a header or title in the macro file, but it is always a good idea to use comments in the file to document sections of the code. Comments are denoted by the number sign or hash mark "#" and can appear anywhere on a line. All text to the right of the "#" symbol will be ignored by the *SuperView 4K*, but valid commands to the left of the symbol will be executed. The ability to "comment out a line" is supported by this capability.

3.10.2 Downloading Macros

After a macro has been created, the file can be copied directly to the *SuperView 4K* over the network using standard file transfer protocol (FTP).



Example	Download the file "setwindow.txt" to the SuperView 4K.
	Establish an FTP session. See Browser FTP, page 4 for details.
	Drag the file setwindow.txt from the PC and drop it on the SuperView 4K.
	Save the macro from the serial port or Telnet command line interface by issuing the command:
	macrosave setwindow.txt.

Note You cannot to rename the file during the download process.

3.10.3 Listing Macros

Macros that are already stored on the *SuperView 4K* can be listed using the command **MACROLIST** from either the serial or Telnet command line interfaces.

3.10.4 Deleting Macros

Macros are stored in the "/macro" folder. Macros can be deleted using the command **MACRODELete**.

Example	To delete the macro named setwindow.txt , use the command:
Example	madrodel setwindow.txt

3.10.5 Running Macros

The **MACRORUN** command is used to load and execute the particular macro that you wish to execute.

Example	named setwindow.txt , use the command:
ma	acrorun setwindow.txt

Note	A macro can contain other macros.

3.10.6 Pausing Macros

A macro can be paused indefinitely or for a specified period of time by issuing the <u>MACROPAUSE</u> command. A paused macro can be canceled by using the <u>MACROABORT</u> command or restarted by using the <u>MACRORESUME</u> command.



3.10.7 Canceling Macros

A macro can be stopped during execution by issuing the command <u>MACROABORT</u>. After a macro has been stopped in this way you will have to use the <u>MACRORUN</u> command to load and rerun a macro.

3.10.8 Restarting Macros

To continue execution of a paused macro, use the command <u>MACRORESUME</u>. The macro will continue executing from the point in the macro at which the <u>MACROPAUSE</u> was issued.



Issuing other system commands while the system is in **MACROPAUSE** may result in unexpected behavior when you resume macro operation (**MACRORESUME**).

4 CONTROL COMMANDS

This chapter discusses *SuperView 4K* control commands that provide access to all of the unit's functions. The following topics are discussed:

- Control Overview
- Command Format
- Commands
 - Input Commands
 - Timing List Commands
 - Output Commands
 - <u>Window Commands</u>
 - EDID Commands
 - Image Control Commands
 - Clock and Cursor Commands
 - Serial Port Commands
 - Network Commands
 - Macro Commands
 - Miscellaneous Commands
- Factory Timing List

4.1 Control Overview

The *SuperView 4K* may be controlled externally through a serial port, or via the unit's Ethernet 100/ 1000 Base-T port.

4.2 Command Format

All *SuperView 4K* control functions are issued via ASCII commands that are used to set one or more system parameters or values. Commands may be sent by a PC or other controller.

4.2.1 Command Line Usage

All commands take the following form:



COMMANDNAME <value1> <value2>

... and completed by pressing Enter.

Required parameter values are shown in angle brackets < >. In the above example, value1, value2 (etc.) are required parameters specific to the stated command.

Example	To set <i>SuperView 4K</i> 's baud rate to 9600 bps, enter the command:
	BAUDRATE 9600
The m	ajority of commands have both long and short forms:
•	The long form version is an easily understood word (or the concatenation of two or more words).
	The short form version is a brief, one to seven letter abbreviation of the command.
Note	With the exception of several "interactive" functions, commands are not case sensitive. In the Command Set List, uppercase characters in the long form version indicate the letters required for the short form version.

In the example above, the command **BAUDrate** could be entered in the following ways:

BAUDRATE baudrate BAUD baud

Important To execute commands, each command line must be followed by a carriage return (pressing ENTER).

4.2.2 Command Help

There are two primary ways to use the SuperView 4K's help feature:

- Type Help to list all SuperView 4K commands.
- Type Help followed by a command to get command-specific help.

Examples	Туре н вкі to get help on the BRIghtness command.
	Type н winsrcrect to get help on the WINdowSouRCeRECTangle command.



4.2.3 Predefined Parameter Values

Some commands have predefined values, and only these may be used as parameter choices. Predefined parameter choices are indicated as:

<value1|value2|value3>

Example	The choices for BAUDrate are:
	<9600 19200 38400 57600 115200>

4.2.4 Query the Current Setting

When a command is entered without any parameters, *SuperView 4K* reports back the current settings of the selected parameter.

What is the current baud rate setting?	
Example	baud would return:
	9600

4.2.5 Parameter Ranges

Parameter values may be a range of values or a defined set of choices (as described above in the **Predefined Parameter Values** section).

Ranges are indicated as:

<value1...value2>

Example

The value of BRIght is a range of: <-500...500>

4.2.6 Addressable Commands

Commands such as BAUDrate do not need an explicit address, as the *SuperView 4K* has only a single serial port. However, other commands can be applied to several destinations. For example the brightness command can apply to all *SuperView 4K* inputs or to an individual input — depending upon how the command sequence is structured.

An individual destination is indicated by the parameter such as <input_type>.



Example	Set the brightness of DVI input 1 to 50:
Lxample	bri dvi 1 50

Many commands allow the use of the optional modifier ALL which enables you to set all applicable destinations with one command, or to display the current setting. The command parameter will then be indicated in the following form:

```
<window# | ALL>
```

The ALL modifier is useful for setting all input channels to the same value.

```
Example Freeze all windows:
frz all on
```

4.2.7 Input Types

The input type is a required parameter in a number of commands. Specify input type as HDMI, DVI, RGB, or YPBPR.

4.2.8 **Optional Parameters**

Some commands have optional parameter values that are not required in a command. These discretionary values are indicated by square brackets []:

COMMAND <value> [<value2>]

AspectRatio is a command with optional parameters. The first value, input# is a required parameter while the second is optional:

AR <input#> [NORMAL|WS1|WS2|WS3|WS4]

In this case, the command may be used to report the current AspectRatio settings by using only the window number.



4.3 Commands

Table 4-1 provides a hyperlinked index of all *SuperView 4K* commands in alphabetical order. Click the hyperlink to go directly to a detailed description of the command.

Table 4-1 Command Summaries

Command	Туре	Description
AspectRatio	Window	Sets the aspect ratio for an input.
BackGroundCOLOR	Output	Sets the color of the background.
BAUDrate	Serial Port	Sets the serial port baud rate.
BRIghtness	Image	Sets the brightness value of the selected input.
CLOCKCOLOR	Clock/Cursor	Sets the character color of the optional clock display.
CLOCKENable	Clock/Cursor	Enables/disables the display of the clock.
CLOCKForMaT	Clock/Cursor	Selects the clock display between 12 and 24 hour format.
CLOCKPOSition	Clock/Cursor	Specifies the coordinates of the clock on the display.
CLOCKSIZE	Clock/Cursor	Sets the size of the on-screen clock.
ClockSYNC	Miscellaneous	Synchronizes the real-time clock.
	Miscellaneous	Sets the period in minutes between clock synchronizations.
CONTrast	Image	Sets the contrast value of the selected input.
CURSORENable	Cursor	Turns a cursor on or off.
CURSORPOSition	Cursor	Sets the cursor position on the display.
CURSORTYPE	Cursor	Specifies the type of cursor arrow displayed.
ECHO	Serial Port	Turns the serial port echo On/Off.
EdiDCAPture	EDID	Capture EDID from output 1 device to EDID list.
EdiDDELete	EDID	Delete EDID from list.
EdiDEXPORT	EDID	Export EDID from list to file.
EdiDIMPORT	EDID	Import EDID from file to EDID list.
EdiDINFO	EDID	Display EDID information of input port or output port
EdiDLIST	EDID	Display EDID list.
EdiDLOAD	EDID	Load EDID From EDID list to input prom.
EdiDNAME	EDID	Name an EDID entry.
EdiDRFD	EDID	Restore input EDID to factory default.
FORCEHotPlug	EDID	Forces a hot plug event on an input
FReeZe	Image	Freezes the video frame of the specified input.
FTPPort	Network	Sets or reports the FTP server listening port.
FullScreen	Window	Sets the selected input to a full screen.
GAMma	Output	Sets the output gamma for all output ports.
HANDShaking	Serial Port	Selects hardware or software flow control for the serial port.



Command	Туре	Description
<u>Help</u>	Miscellaneous	Displays the entire serial command set or provides help on a specific command.
HOSTNAME	Network	Sets the hostname for the SuperView 4K.
HTTPPort	Network	Sets or report the web server listening port.
HUE	Image	Sets the hue value of the selected input.
INputAutoSync	Input	Sets the autosync mode for the specified input channel.
INputEQ	Input	Sets input cable equalization.
INputINTeractive	Input	Enters input interactive mode to visually adjust an input's timing parameters.
INputLOAD	Input	Loads the indicated entry from the Timing List to the specified input channel.
INputNAME	Input	Names the specified input settings.
INputPHASE	Input	Adjusts the phase of the analog converter to optimize picture quality (RGB/YPbPr only).
INputSAVE	Input	Saves the specified input timing parameters to the selected entry in the Timing List.
INputTiMing	Input	Sets the selected input's timing.
INputSYNCTHreshold	Input	Sets the sync threshold voltage for RGB and YPbPr inputs.
IPADDRess	Network	Sets the IP address for the SuperView 4K.
IPGateWay	Network	Sets the SuperView 4Ks IP gateway.
IPPort	Network	Sets the port for network communication.
IPSubNET	Network	Sets the IP subnet mask for the SuperView 4K.
IPUPDate	Network	Updates IP parameters after they have been changed.
MACADDRess	Network	Displays the SuperView 4K Ethernet MAC address.
MACROABORT	Macro	Terminates the currently executing macro.
MACRODELete	Macro	Deletes a stored macro.
MACROLIST	Macro	Lists stored macros.
MACROPAUSE	Macro	Pauses the currently executing macro.
MACRORESUME	Macro	Resumes the paused macro.
MACRORUN	Macro	Runs the specified macro file.
MACROSAVE	Macro	Saves a downloaded macro file.
NTSIP	Miscellaneous	Sets the IP address of a Network Time Server.
OutPutENable	Output	Enable or disable one or all outputs.
OutPutFADE	Output	Fades the output to the background.
OutPutLINKTYPE	Output	Reports the output link mode as single or dual-link.
OutPutREFerence	Output	Selects the reference for output timing.
OutPutTiMing	Output	Sets the output timing by parameter or displays current output settings.

Table 4-1 Command Summaries (Continued)



Command	Туре	Description
OutPutTiMingINTeractive	Output	Enters the output interactive timing adjustment mode.
OutPutTiMingLOAD	Output	Sets output display parameters from values stored in Timing List.
OutPutTiMingNAME	Output	Assigns a user-defined name to the Output Timing List entry in use.
	Output	Saves the current output timing settings to the specified user timing slot.
<u>PAN</u>	Window	Pans the image inside the specified window interactively or directly.
PassWORDPROTection	Miscellaneous	Enables/disables password protection.
POSition	Window	Enters the interactive or direct position mode for the specified window.
PRIority	Windows	Sets the window priority.
RECALLCONFIGuration	Miscellaneous	Recalls configuration parameters that were manually saved.
RestoreFactoryDefaults	Miscellaneous	Restores all user settings to their factory default values.
SATuration	Image	Sets the saturation value of the selected input.
SAVECONFIGguration	Miscellaneous	Forces an update and explicit save of the system's NVRAM.
SETPASSword	Miscellaneous	Changes the password.
SETRATE	Window	Sets the amount that a window moves with the POS ition command.
SETTINGSEXPORT	Miscellaneous	Exports an ASCII file of system settings for transfer to the terminal or controller.
SETTINGSIMPORT	Miscellaneous	Accepts ASCII data relating to system settings.
SHARPness	Image	Adjusts the sharpness for the selected input.
SIZE	Window	Sets the size of the specified window in interactive or direct mode.
<u>SYStemINFO</u>	Miscellaneous	Displays the following information: Product type Date of manufacture Serial number Firmware revision number IP settings Configurations (options)
SYStemReSeT	Miscellaneous	Performs a system reboot.
SYStemTIME	Miscellaneous	Reports or sets the system time.
TestPattern	Miscellaneous	Turns on the designated test pattern.
TimeZone	Miscellaneous	Select a time offset from Greenwich Mean Time.
TiMingDELete	Timing List	Deletes the specified user entry from the Timing List.
TiMingLIST	Timing List	Displays entries in the Timing List.
TiMingLISTCLEAR	Timing List	Deletes all user defined input timing entries.

Table 4-1 Command Summaries (Continued)



Command	Туре	Description
TiMingLISTLOAD	Timing List	Loads a complete set of timing parameters to the specified timing list entry.
UNZOOM	Window	Cancels the current zoom on the specified window.
UpdateFirmWare	Miscellaneous	Updates the firmware for the SuperView 4K.
VERsion	Miscellaneous	Returns firmware and hardware version information.
WindowBorderCOLOR	Window	Sets the color of the border for the specified window.
WindowBorderWIDTH	Window	Sets the width of the border for the specified window.
WINdowDESTinationRECTangle	Window	Sets the size and position of the selected window.
WINdowDESTinationRECTangleRELat ive	Window	Sets the coordinates of an output window expressed as fractions of the display.
WINdowENable	Window	Enables/disables the specified window.
WINdowGROUP	Window	Creates a group of windows.
WINdowGROUPCLEAR	Window	Clears a window group.
WINdowGROUPDESTinationRECTang le	Window	Sets the destination rectangle of a window group.
WINdowIDentify	Window	Causes the specified window to flash on/off to identify the window position.
WindowLabelBackGroundCOLOR	Window	Sets the color of the label background for the specified window.
WindowLabelCOLOR	Window	Sets the color of the label text for the specified window.
WindowLabelENable	Window	Enables/disables the label for the specified window.
WindowLabelJUSTification	Window	Sets the justification of the label text for the specified windows.
WindowLabelNAME	Window	Sets the label text for the specified windows.
WINdowLabelPOSition	Window	Sets the position of the label for the specified windows.
WindowLabelSIZE	Window	Sets the size of one or all window labels.
WINdowLAYOUT	Window	Recall a window layout.
WINdowLAYOUTLIST	Window	Display window destination rectangle for a window layout.
WindowPresetDELete	Window	Clears the specified preset register.
WindowPresetLIST	Window	Lists the names of the specified presets.
WindowPresetLISTCLEAR	Window	Deletes all the window presets.
WindowPresetLISTNAME	Window	Displays the number and name of all active presets.
WindowPresetLOAD	Window	Loads the specified preset into the SuperView 4K.
WindowPresetNAME	Window	Assigns a name to the specified preset.
WindowPresetSAVE	Window	Saves the current window parameters to the specified preset.
WINdowSouRCe	Window	Sets the input source for a window.
WINdowSouRCeRECTangle	Window	Selects a portion of an input source.
WINdowSouRCeRECTangleRELative	Window	Sets the source rectangle for the selected input relative to the full window size.

Table 4-1 Command Summaries (Continued)



Table 4-1	Command Summaries	(Continued)
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Command	Туре	Description
ZooM	Window	Zooms the specified window in interactive or direct mode.

4.3.1 Input Commands

Input commands allow you to make input adjustments, and then save these settings into the unit's internal memory. The table below lists all input commands, their arguments, and detailed descriptions.

Command	Arguments	Description
INputAutoSync	<rgb dvi<br="" ypbpr="" =""> HDMI> <input #="" all="" =""/> [ON OFF]</rgb>	Enables/disables autosync for the specified inputs. When autosync is enabled, the current WSR settings are automatically reset to full size when the input signal is re-synchronized. When autosync is disabled, the WSR settings are retained even with a loss of the input signal.
		Example : To enable autosync on RGB input 6, type:
		inas rgb 6 on
		Example : To disable autosync for all DVI inputs, enter the command:
		inas dvi all off
		Default: On
INputEQ	<dvi hdmi="" =""> <input #=""/></dvi>	Defines the equalization setting for an input.
		Example : To set the EQ level for DVI input 5 to 22, use the command:
		ineq dvi 5 22
		Without the value argument, the current setting is returned.

Table 4-2 Input Commands Descriptions



Command	Arguments	Description
INputINTeractive	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input#></input#></rgb>	Enters input interactive mode to visually adjust the specified input's timing parameters. A white box and cross hair appear over the full screen input.
		Starting with the upper-left corner of the image, use these <i>lowercase</i> keyboard controls to position the image within the white frame:
		 i = move up m = move down j = move left I = move right With the upper-left corner properly adjusted, address the lower-right corner next by using these uppercase keyboard controls:
		 I = move up M = move down J = move left L = move right With the image properly adjusted, quit the utility:
		q = quit
INputLOAD	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input#> <1160></input#></rgb>	Loads the indicated entry from the Timing List to the specified input channel. Timing list entries from 1 to 99 are reserved for factory-defined timing parameters. Entries from 100 to 160 are available for user-defined timing entries.
		Example : To load timing list entry 55 for DVI input 2, use the command:
		inload dvi 2 55
IN put NAME	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input#> <name></name></input#></rgb>	Names the specified input settings. The argument can be up to 23 alphanumeric characters with no spaces (use underscore for space).
		After naming the input settings, you should send the <u>INputSAVE</u> command to save this named entry to the Timing List.
		Example: Name RGB input 4 "Station 1," enter:
		inname rgb 4 Station_1
INputPHASE	<rgb ypbpr="" =""> <input#> [063]</input#></rgb>	Adjusts the phase of the Analog/Digital Converter to optimize picture quality. This command applies to analog inputs only.
		Example : To set the phase for YPbPr input 3 to 44, enter the command:
		inphase ypbpr 3 44

Table 4-2 Input Commands Descriptions (Continued	Table 4-2	Input Commands Descriptions (Continued)
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Command	Arguments	Description
IN put SAVE	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input#> <100160></input#></rgb>	Saves the input timing parameters for the specified input to the selected entry in the Timing List. Whenever a signal is applied to the graphics input the signal parameters are measured and compared to entries in the list. When a match is found it is applied to the <i>SuperView 4K</i> .
		Example : To save DVI input 2 timing to number 110, type:
		insave dvi 2 110
INputSYNCTHreshold	<rgb ypbpr="" =""></rgb>	Sets the ADC sync threshold for analog inputs.
	<input #="" all="" =""/> [17]	Setting Voltage
		1 0.8
		2 1.2
		3 1.6
		4 2.0
		5 2.4
		6 2.8
		7 3.2
	Example : Set the threshold for all RGB inputs to 2.0 volts by entering the command:	
		insyncth rgb all 4
		Default: 3 (1.6 V)



Command	Arguments	Description
IN put TiM ing	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input#> [<hfp> <hs> <hbp> <hact> <vfp> <vs> <vbp> <vact>] [HFP HS HBP HACT VFP VS VBP VACT] [value]</vact></vbp></vs></vfp></hact></hbp></hs></hfp></input#></rgb>	Defines the active area of the input signal and the selected input's timing. With this command, the user can set all timing parameters or just the value of an individual parameter.
		Horizontally, the active part of the signal is <hact>. The inactive part (h blanking) is <hfp> + <hs> + <hbp>. The total number of pixels horizontally is htotal = (h blanking) + <hact>. Note that the pixel clock frequency = hfreq x htotal so changing the total horizontal pixel count (htotal) will directly change the frequency of the sample clock.</hact></hbp></hs></hfp></hact>
		The active part of the vertical component of the signal is < vact >. The inactive part (v blanking) is < vfp> + <vs> + <vbp></vbp></vs> . The total number of lines is vtotal = (v blanking) + < vact >. Since <i>SuperView</i> 4K knows the total line count, an error will result if the sum of the active and inactive parts entered in the command do not match the measured total line count.
		Refer to the <u>Timing Parameters</u> section for details.
		Example : To query the value of vertical sync width for RGB 1, issue the command:
		intm rgb 1 vs
		Example : To set the value for <hs></hs> to 112 for DVI input 2 use the command:
		intm dvi 2 hs 112
		Example : To enter values for parameters <hfp <vact="" through=""> for YPbPr input 3, use the command:</hfp>
		intm ypbpr 3 48 112 248 1280 1 3 38 1024
		To report the current timing values, enter only the input type and number.

Table 4-2	Input Commands	Descriptions ((Continued)
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4.3.2 Timing List Commands

The *SuperView 4K* uses a timing list that is applicable to both the graphics inputs and outputs. Commands are provided to add and delete sets of timing information to the list.

Command	Arguments	Description
TiMingDELete	<100 160>	Deletes the specified timing list entry. Timing list entries 199 are reserved for factory-specified timing and can not be deleted.
		Example : To delete entry 133 from the timing list, enter the command:
		tmdel 133
TiMingLIST	[<1 160> <1 160>] [ACTIVE OUT IN ALL]	Displays the entire Timing List. If arguments are supplied, displays only the portion of the list requested. The ACTIVE argument displays all saved list entries.
		Example : To display timing list entries 100 through 160, type:
		tmlist 100 160
TiMingLISTCLEAR	none	Deletes all user defined input timing entries 100 to 160. This does not affect the factory specified timing entries 199.
TiMingLISTLOAD	<100160> <name> <hfp> <hs> <hbp> <hact> <vfp> <vs> <vbp> <vact> <hfreq> <sync> <hpol> <vpol> <il></il></vpol></hpol></sync></hfreq></vact></vbp></vs></vfp></hact></hbp></hs></hfp></name>	Provides the ability for a user to completely define an input signal. This does not require an input signal to be present to do so. TiMingLISTLOAD may be used to enter the list entries one by one.
		 The first argument, <100160> indicates the Timing List entry number in which the timing string is stored. The second argument, <name>, gives a customized name to the signal.</name> The next eight arguments, <hfp> <hs> <hbp> <hact> <vfp> <vs> <vbp> <vact>, define the signal's timing.</vact></vbp></vs></vfp></hact></hbp></hs></hfp> The next five arguments, <hfreq> <sync> <hpol> <vpol> <il>, define the horizontal frequency, sync format and polarity, and interlace status.</il></vpol></hpol></sync></hfreq> All 15 arguments must be supplied for the command to be successful. Example: Name timing list entry 110 Command1, with values for all parameters, enter the command: tmlistload 110 Command1 16 80 184 1920 1 2 7 1080 65400 5 0 0 0

 Table 4-3
 Timing List Command Descriptions



4.3.3 Output Commands

Output commands are applied to all outputs ports simultaneously. They define the output timing and sync format, and save, load, and delete timings to the Output List. Refer to the following table for a complete description of all output commands.

Command	Arguments	Description
BackGroundCOLOR	[<redvalue> <greenvalue > <bluevalue>] [WHITE BLACK RED GREEN BLUE MAGENTA CYAN YELLOW]</bluevalue></greenvalue ></redvalue>	Sets the red, green, and blue values or a specific color for the background.
		Example : To set the background to a custom color with the values red = 100, green = 100, and blue = 225, use the command:
		bgcolor 100 100 225
		Example: To set the background to cyan, enter:
		bgcolor cyan
GAMma	[0.5 2.0]	Sets the output gamma for all output ports. Gamma is a non-linear function that is applied to the output image. It is used to match the gamma of the sources to that of the display device. The default setting of 1.0 provides no gamma correction so that the gamma of the displayed image is identical to the gamma of each input image. Example : To set the gamma value to 1.2 for all output ports, enter the command:
		gam 1.2
		Default: 1.0
OutPutENable	<output #="" all="" =""></output>	Enable or disable one or all outputs.
	[ON OFF]	Example : To disable output 8, use the command:
		open 8 off
		Default: ALL ON

Table 4-4 Output Commands Descriptions



Command	Arguments	Description
OutPutFADE	<0100> <0100><0.1128.0>	Fades the output to a percent of full image over a specified period of time. A setting of 0 will fade to the background completely; 100 is no fade. The fade effects the window, clock, and cursor.
		Enter the command with just the fade percentage (0100) to fade immediately. Enter the command with a percentage and time (in seconds) for a slow fade out.
		Example : To set the output to fade to 10% in twenty seconds, enter the command:
		opfade 10 20
		Example: To fade to the background immediately, enter:
		opfade 0
OutPutLINKTYPE	[SINGLE DUAL]	Sets the output type. Without an argument, reports the output link mode as single-link or dual-link.
		Example : To set the output link type to dual, enter:
		oplinktype dual
OutPutREFerence	[INT EDID]	Selects the output timing mode. When EDID is selected the <i>SuperView 4K</i> determines the output format from the display device connected to output 1, and automatically loads the timing values to match the requirements of the display. When INT is selected, the timing values are loaded manually by the user from the internal timing list.
		Example : To enable the use of a Timing List entry, type:
		opref int

Table 4-4 Output Commands Descriptions (Continued)



Command	Arguments	Description
OutPutTiMing	[<hfp> <hs> <hbp> <hact> <vfp> <vs> <vbp> <vact> [<hfreq> <sync> <hpol> <vpol> <il>]]</il></vpol></hpol></sync></hfreq></vact></vbp></vs></vfp></hact></hbp></hs></hfp>	This advanced mode sets the output timing by parameter. The command supports the ability to set all parameters at once, or the ability to set (or query) the status of individual parameters.
	I HFP HS HBP HACT VFP VS VBP VACT HFREQ SYNC HPOL	Refer to the <u>Timing Parameters</u> section for details on all timing parameters.
	VPOL IL] [value]]	Example : To set the vsync value to 3, type:
		optm vs 3
		Example : To set values for parameters hfp through vact , enter:
		optm 48 112 248 1280 1 3 38 1024
		Note : The IL argument is not functional for output timing.
OutPutTiMingINTeractive	none	Enters the output interactive adjustment mode, enabling you to optimize the output timing values to better suit your display. Once in the interactive mode, a white box and cross hair appear. Specific keys are assigned to control the position of the upper left, and lower right portions of the image. Note that these keys are case sensitive.
		Starting with the upper-left corner of the box, use these lowercase keyboard controls:
		 i = move up m = move down j = move left I = move right With the upper-left corner properly adjusted, address the lower-right corner next by using these uppercase keyboard controls:
		 I = move up M = move down J = move left L = move right With the image properly adjusted, quit the utility:
	<1 160>	q = quit
OutPut InvingLOAD	N I 1002	stored in the specified Timing List entry. Note that timing list entries 199 are reserved for factory defined timing parameters. Entries 100160 are user-defined. Refer to the <u>Factory Timing List</u> for details on all entries and timings.
		Example : To set the output timing to the values in user entry 114, use the command:
	1	optmload 114

Table 4-4	Output Commands	Descriptions ((Continued)
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Command	Arguments	Description
OutPutTiMingNAME	[name]	Assigns a user-defined name to the Timing List entry currently in use. The name text string can be up to 23 alphanumeric characters with no spaces (use underscore in place of a space).
		Example : To name the current timing list entry "Conf_6," type:
		optmname Conf_6
OutPutTiMingSAVE	<100160>	Saves the current output timing settings to the specified user timing slot.
		Example : To save the current output timing to list entry 116, use the command:
		optmsave 116

Table 4-4 Output Commands Descriptions (Continued)

4.3.4 Window Commands

Window commands cover positioning and visibility functions, and enable you to control the display configuration, zoom and pan operations. Refer to the following table for a complete description of all window positioning and visibility commands.

Table 4-5	Window	Commands	Descriptions
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Command	Arguments	Description
AspectRatio	<rgb dvi<br="" ypbpr="" =""> HDMI> <input#> [NORMAL WS1 WS2 WS3 WS4]</input#></rgb>	Sets the aspect ratio for an input. Use this command for a wide screen display with letterboxed video. At 1600 x 1200, the ratios are as follows:
		NORMAL = 1.33:1 WS1 = 1.66:1 WS2 = 1.78:1 WS3 = 1.85:1 WS4 = 2.35:1 Example: To set RGB input 7 to 1.85:1, use the
		command: ar rgb 7 ws3
		Default: NORMAL



Command	Arguments	Description
FullScreen	<window# black="" =""></window#>	Sizes the selected input to fill the display or changes the entire output to black.
		Example : To fill the output display with the contencts of window 6, enter:
		fs 6
		Example : To set the wall to black, use the command:
		fs black
		To restore all windows, load a preset or a factory- defined <u>WINdowLAYOUT</u> .
PAN (interactive)	<window#></window#>	Activates the interactive pan function for the selected window. Only a zoomed input can be panned. Controls are listed below:
		i = pan up m = pan down j = pan left l = pan right q = quit
PAN (direct)	<window#> [<i j="" l="" m="" =""> <repetition>]</repetition></i></window#>	Activates the pan function for the selected window using the direct mode. Only a zoomed input can be panned. Controls are listed below:
		<pre>i = pan up m = pan down j = pan left l = pan right q = quit Example: To pan 5 units to the left in window 6, enter the command:</pre>
		pan 6 j 5
POS ition (interactive)	<window#></window#>	Activates the interactive window position function for the selected window. Controls are listed below:
		<pre>i = up m = down j = left I = right q = quit Use the SETRATE command to set the number of pixels and lines moved.</pre>

Table 4-5	Window Commands D	Descriptions ((Continued)
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Command	Arguments	Description
POS ition (direct)	<window#> [<i j="" l="" m="" =""> <repetition>]</repetition></i></window#>	Adjusts the position of the specified window using the direct (immediate) mode. Controls are listed below:
		<pre>i = up m = down j = left I = right The size of increment is set by the variable repetition (1100).</pre>
		Example : To move window 2 to the right by 10, enter the command:
		pos 2 l 10
		Use the SETRATE command to set the number of pixels and lines moved.
PRIority	<window# all="" =""> [18]</window#>	Sets the priority of one or all windows.
		Example : To set window 6 to priority level 3, type:
		pri 6 3
		Example : To set the priorities of windows 1 through 8 to priorities 1, 4, 3, 6, 7, 2, 5, 8 respectively, enter the command:
		pri all 1 4 3 6 7 2 5 8
SETRATE	<x-rate> <y-rate></y-rate></x-rate>	Determines the number of pixels (x-rate) and lines (y-rate) a window will move with the POS ition command.
		Example : To set the rate to 3 pixels by 2 lines, use the command:
		setrate 3 2
		Default: $x = 2, y = 2$
SIZE (interactive)	<window#></window#>	Enters an interactive control of window size for the specified window.
		s = smaller 1 = larger q = quit (exit interactive size adjust mode)

Table 4-5	Window Commands Desc	riptions (Continued)
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Command	Arguments	Description
SIZE (direct)	<window#> [<s l="" =""> <repetition>]</repetition></s></window#>	Adjusts the size of the specified window using direct (immediate) mode.
		 s = decrement the window size by the amount defined by repetition variable. 1 = increment the window size The size of the increment or decrement step is set by the variable repetition (1100).
		Example : To reduce the size by 5 increments use the command:
		size s 5
UNZOOM	<window#></window#>	Resets the zoom to 100% for the specified window.
WindowBorderCOLOR	<pre><window# all="" =""> [<red> <green> <blue>] [WHITE YELLOW CYAN GREEN MAGENTA RED BLUE BLACK]</blue></green></red></window#></pre>	Sets the color of the border around the specified window. The user can set the color by setting the red, green, blue values (0255) or using the predefined color values white, yellow, cyan, green, magenta, red, blue or black.
		Query or set all the current setting for all borders by using the command WBCOLOR ALL
		Example : To set the border color for window 4 to cyan, enter the command:
		wbcolor 4 cyan
WindowBorderWIDTH	<window# all="" =""> [0100]</window#>	Sets the border width around the specified window. The size is set in pixels. To turn the border off set the size to zero.
		Example : To set the border width to 6 for all windows, enter the command:
		wbwidth all 6
		Default: 0



Command	Arguments	Description
WINdowDESTinationRECT angle	<pre><window#> <x: -81928192=""> <y: -81928192=""> <width: 08192=""> <height: 08192=""> [duration: 0.1128]</height:></width:></y:></x:></window#></pre>	 Sets both the position and size of an input's destination rectangle. The <x> and <y> arguments represent the wall coordinates of the rectangle's top left corner, but hardware limitations may cause the actual placement to differ slightly from that specified. (When you read WDR for any window, the numbers given accurately reflect the hardware state.)</y></x> The <width> and <height> arguments represent the destination rectangle.</height></width> The duration is the transition time in seconds. Note: Maximum values for placement and size are dependent on the wall configuration and resolution. The rectangle can be positioned and sized so that part of it is positioned off screen. WDR is limited to the output resolution of the full screen display. Example: With an output host resolution of 1024 x 768, to set window 4 to full screen on output 1 in 10 seconds, enter the command: WDR 4 0 0 1024 768 10 Example: To place a 100 pixel by 100 line video window at column 300, line 400 on the wall for window 6, enter the command: windestrect 6 300 400 100 100
WINdowDESTinationRECT angleRELative	<window#> <x: -1.004.00=""> <y: -<br="">1.004.00> <width: 0.02.0=""> <height:0.02.0> [duration: 0.10128]</height:0.02.0></width:></y:></x:></window#>	Sets the destination rectangle expressed as fractions of the total combined wall display. Example : To place window 7 at 0, 0 with a width and height of twice normal with the change taking 15 seconds, enter the command: windestrectrel 7 0 0 2 2 15
WIN dow EN able	<window# all="" =""> [<on OFF>]</on </window#>	Turns the specified window on or off. The ALL argument is used to turn all windows on or off simultaneously. Example: To turn all windows off, type: winen all off Default: ALL ON
WIN dowIDentify	<window#></window#>	Causes the indicated window to blink. The output returns to the previous state after a period of approximately 2 seconds.



Command	Arguments	Description
WINdowGROUP	<group#><type> <anchor#></anchor#></type></group#>	Use this command to create and activate a group of windows. Up to four groups (numbered 1 through 4) can be created as long as no windows are in more than one group. The anchor is the first window in the group; the remaining members of the group will be the next sequential windows. Available group types are: 1x2, 1x3, 1x4, 2x1, and 2x2.
		Example : To create and enable group 1 of 2x2 windows 4, 5, 6, and 7, enter:
		wingroup 1 2x2 4
WINdowGROUPCLEAR	<group#></group#>	Use this command to disable a window group.
		Example: To disable group 3, type:
		wingroupclear 3
WINdowGROUPDESTinatio nRECTangle	<group#> <x> <y> <width> <height></height></width></y></x></group#>	Adjusts the size and position of a windows group. The group must first be defined using the command WINdowGROUP .
		Example: To place window 4 at coordinates 100x200 at the size 1000x800, enter the command:
		wingroupdestrect 4 100 200 1000 800
WindowLabelBackGroundC OLOR	<window# all="" =""> [<red> <green> <blue>] [WHITE YELLOW CYAN GREEN MAGENTA RED BLUE BLACK]</blue></green></red></window#>	Sets the color of the background behind the label text for the specified window. The user can set the color by setting the red, green, blue values (0255) or using a pre-defined color. Example : To set the label background for window 3 to magenta, type:
		wlbgcolor 3 magenta
WindowLabelCOLOR	<window# all="" =""> [<red> <green> <blue>] [WHITE YELLOW CYAN GREEN MAGENTA RED BLUE BLACK]</blue></green></red></window#>	Sets the color of the text for the specified window label. The user can set the color by setting the red, green, blue values (0255) or using a predefined color.
		Example : To set the color of the window 3 label text to red = 0, green = 200, and blue = 100, enter the command:
		wlcolor 3 0 200 100
WindowLabelENable	<window# all="" =""> [ON OFF]</window#>	Enables the label for the specified windows. The ALL option provides the ability to enable or disable all labels simultaneously.
		Example : To turn off labels for all windows, type:
		wlen all off



Command	Arguments	Description
WindowLabelJUSTification	<window# all=""> [LEFT CENTER RIGHT]</window#>	Justifies the label for the specified window to the center, left or right of the window. See also WINdowLabelPOSition for details on positioning vertically. Without a justification argument, the current value is returned.
		Example : To center the text of the window 3 label, use the command:
		wljust 3 center
WindowLabelNAME	<window#> [label]</window#>	Defines the label to be applied to the specified window. The label may be up to 23 characters in length. Without a label argument, the current text is reported.
		Example : To enter the text "Cockpit 10" for window 3 label, type:
		wlname 3 Cockpit_10
WINdowLabelPOSition	<window# all="" =""> [TOP BOTTOM]</window#>	Positions the label for the specified window at the top or bottom of the window. See also <u>WindowLabelJUSTification</u> for details on positioning horizontally. To report the current position, enter the command without the TOP/ BOTTOM argument.
		Example : To place the window 3 label at the bottom, enter the command:
		wlpos 3 bottom
WindowLabelSIZE	<window# all="" =""></window#>	Selects the font size of window labels.
	[NORMAL LARGE]	Example : To use the large font for all labels, use the command:
		wlsize all large
WINdowLAYOUT	<07> [<window#></window#>	Arranges windows to a factory-defined layout.
	<window#>]</window#>	Example : To arrange windows in layout 1 with the window sequence being 3 4 5 6 7 8 1 2, enter the command:
	10 100	winlayout 1 3 4 5 6 7 8 1 2
WINDOWLAYOUTLIST	<0100>	factory-defined layout. Values are displayed as fractions of the output timing. See <u>WINdowLAYOUT</u> for more information.
		Example: To display window layout 0, enter:
		winlayoutlist 0

Table 4-5	Window Commands Descriptions (Continued)
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Command	Arguments	Description
WindowPresetDELete	<150>	Clears the specified preset register.
		Example: To delete preset 21, enter:
		wpdel 21
WindowPresetLIST	<150 ALL>	Displays window properties including the source and destination rectangles saved for each window as well as border size and labels. Empty presets entries are not shown.
		Use the argument ALL to list all presets.
		Example : To display details of preset 14, enter the command:
		wplist 14
WindowPresetLISTCLEAR	(none)	Deletes all the window presets. This command responds with a prompt asking for confirmation to proceed with the deletion.
		Note: There is no undo function for this command.
WindowPresetLISTNAME	(none)	Displays the number and name of all active presets.
WindowPresetLOAD	<150 > [duration: 0.1128	Loads the specified preset into the <i>SuperView 4K</i> .
		Example : To load preset 23, use the command:
		wpload 23
WindowPresetNAME	<150> [name]	Assigns a name to the specified preset. The name is a string of up to 23 characters in length and may consist of any readable ASCII character except for spaces. See also <u>WindowPresetLIST</u> .
		Example : To name preset 18 to "Training Room," type:
		wpname 18 Training_Room
WindowPresetSAVE	<150 >	Saves the current window source and destination parameters and other characteristics (borders, labels, etc.) to the specified preset.
		Example : To save the current window parameters to preset 13, type:
		wpsave 13



Command	Arguments	Description
WIN dow S ou RC e	<window# all="" =""> [<input_type> <input#>]</input#></input_type></window#>	Sets the source of a window. Input types are: DVI RGB YPBPR HDMI ALL may only be used to report current sources; ALL cannot be used to specify a source. Example: To set the source of window 6 to HDMI 6 use the command:
		winsrc 6 hdmi 6
		Example : To display the current source for all windows, enter the command:
		winsrc all
WINdowSouRCeRECTangle	<window#> [<x: 01920=""> <y: 01440=""> <width: 01920=""></width:></y:></x:></window#>	Sets the source rectangle for the selected input. The source rectangle is the portion of the original input that is displayed on screen. By default, WINSRCRECT is set to show the entire image.
< [<height: 01440="">] [duration: 0.1128]</height:>	The source rectangle is used to select the specified portion of an image. The <x> and <y> coordinates represent the coordinate screen starting point from which to draw the supplied values of <width> and <height>.</height></width></y></x>
		Note: Actual ranges depend on the resolution of the input window.
		The optional duration parameter sets the time taken to transition from the initial setting to the new coordinates specified by the command.
		Example: To zoom in on the upper left quadrant of an 800x600 input 5, WINSRCRECT values are:
		winsrcrect 5 0 0 400 300 Example: To display only the bottom right quadrant, WINSRCRECT values are:
		winsrcrect 5 400 300 400 300 Example: The full, default source rectangle for this 800x600 input is:
		winsrcrect 5 0 0 800 600 WINSRCRECT resets to the default value whenever the signal is acquired or reacquired. That is, if you remove or replace the input signal — or if you change the input type on a single channel (using INputTYPE), then WSR resets to the default values for the newly acquired signal.

Table 4-5 Window Commands	Descriptions (C	Continued)
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Command	Arguments	Description
WINdowSouRCeRECTangle RELative	<window#> <x: 0.01.0=""> <y: 0.01.0=""> <width: 0.01.0=""> <height:0.01.0> [duration: 0.1128]</height:0.01.0></width:></y:></x:></window#>	Sets the source rectangle for the selected input relative to the full input window size. Coordinates are expressed in fractions relative to the full input window size. For example use $x = 1.0$, $y = 1.0$ to set the window source rectangle to the native size of the input window.
		The optional duration parameter sets the time taken to transition from the initial setting to the new coordinates specified by the command.
		Example : To set the source rectangle for window 5 to the upper right quarter, enter the command:
		winsrcrectrel 5 .5 0 .5 .5
ZooM (interactive)	<window#></window#>	Adjusts the zoom level of the specified window using the interactive Z oo M mode.
		ZooM affects the WSR value for the input. Controls are:
		i = zoom in o = zoom out q = quit Zoom range is to a single pixel.
		ZooM resets to an unzoomed state whenever the signal is acquired or reacquired. For example if you remove or replace the input signal or if you change the input type setting on a single channel, then ZooM resets to the default values for the new signal.
ZooM (direct)	<window#> [<i o="" =""> <repetition>]</repetition></i></window#>	Adjusts the zoom level of the specified window using the direct (immediate) mode. ZooM affects the WSR value for the input.
		i = zoom in by the amount defined by repetition variable.
		 o = zoom out The size of the increment or decrement step is set by the variable repetition (1100).
		Example : To zoom out window 3 by 5 increments use the command:
		zm 3 o 5
		ZooM resets to an unzoomed state whenever the signal is acquired or reacquired. That is, if you remove or replace the input signal or if you change the input type setting on a single channel, then ZooM resets to the default values for the new signal.



4.3.5 EDID Commands

Com

EdiDCAPture

EDID commands may be used to acquire EDID form connected devices, import or export EDID, load specific EDID, and manage the EDID list.

mand	Arguments	Description
	<1160>	Captures EDID from the device on output 1 to the EDID list.
		Example : To capture output 1 EDID to list entry 16, enter the command:
		edcap 16
	<1160>	Deletes a user EDID list entry.
		Example: To delete entry 27, type:
		eddel 27
	<160> [filename]	Exports EDID from the list to a file.

		edcap 16
EdiDDELete	<1160>	Deletes a user EDID list entry.
		Example: To delete entry 27, type:
		eddel 27
EdiDEXPORT	<160> [filename]	Exports EDID from the list to a file.
		Example : To export list entry 15 to the file MONITOR123, use the command:
		edexport 15 MONITOR123
EdiDIMPORT	<1160> [filename]	Imports EDID from a file to the EDID list.
		Example : To import EDID from the file Apollo to list entry 33, enter the command:
		edimport 33 Apollo
EdiDINFO	[<dvi hdmi="" =""> <input #=""/>] [output #]</dvi>	Display EDID information of input port or output port.
		Example : To display the EDID of input port DVI 3, type:
		edinfo dvi 3
		Example : To display EDID for output 5, use the command:
		edinfo 5
Edi DLIST	[160] [<159> <260>]	Displays one or more EDID list entries.
		Example : To report list entries 12 through 20, enter the command:
		edlist 12 20
EdiDLOAD	<dvi hdmi="" =""> <input #="" <br=""/>ALL> <060></dvi>	Loads EDID from the EDID list to one or all input PROMs.
		Example : To load all DVI inputs with the factory default EDID, type:
		edload dvi all 0


Command	Arguments	Description
EdiDNAME	<edid#> <name></name></edid#>	Names a user EDID entry, list numbers 11 through 60.
		Example : To name EDID list number 23 XENA, enter:
		edname 23 XENA
EdiDRFD	[DVI HDMI] <input #="" th="" <=""/> <th>Restores input EDID to factory default.</th>	Restores input EDID to factory default.
	ALL>	Example : To restore the factory EDID to all HDMI inputs, type the command:
		edrfd hdmi all
FORCEHotPlug	<dvi hdmi="" =""> <input #=""/> [1300]</dvi>	Forces the hot plug line for the specified input to toggle for the specified duration where the time is specified in seconds.
		Example : To force a hot plug event on HDMI input 6 for 2 seconds, enter the command:
		forcehp hdmi 6 2

Table 4-6 EDID Commands (Continued)

4.3.6 Image Control Commands

Image Control commands adjust parameters such as brightness and contrast. Refer to the following table for a complete description of all image control commands.

Table 4-7 Image Control Commands Descriptions	Table 4-7	Image Control Commands Descriptions
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Command	Arguments	Description
BRIghtness	RIghtness < RGB YPBPR DVI HDMI> <input# all="" =""> <-500500></input#>	Sets the brightness value of the selected input. The ALL argument sets brightness for all inputs of the specified type.
		Example : To set the brightness for RGB input 3 to 100, type the command:
		bri rgb 3 100
		Default: 0
CONTrast	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input# all="" =""> <0200></input#></rgb>	Sets the contrast value of the selected input. The ALL argument sets contrast for all inputs of the specified type.
		Example : To set the contrast to 110 for all RGB inputs, use the command:
		con rgb all 110
		Default: 100



Command	Arguments	Description
FReeZe	<input# all="" =""> [ON OFF]></input#>	Turns freeze status of the selected window ON or OFF . Changes to the brightness, contrast, saturation, sharpness, and hue parameters made during a freeze, will not be applied until after the freeze is turned off.
		Example: To unfreeze all inputs, type:
		fr all off
		Note : Any change to the input source, input timing or output timing resets the freeze status to off.
		Default: OFF
HUE	<rgb dvi="" ypbpr="" ="" <br="">HDMI> <input# all="" =""> <-180180></input#></rgb>	Sets the hue value of the selected input. Use the ALL argument to set the hue for all inputs simultaneously.
		Example : To set the hue for DVI input 2 to -15, use the command:
		hue dvi 2 -15
		Default: 0
SATuration	<rgb dvi<br="" ypbpr="" =""> HDMI> <input# all=""> <0200></input# ></rgb>	Sets the saturation value of the selected input. Use the ALL argument to set the saturation for all inputs of the specified type simultaneously.
		Example : To set the saturation for all DVI inputs to 90, enter the command:
		sat dvi all 90
		Default: 100
SHARPness	<rgb dvi<br="" ypbpr="" =""> HDMI> <input#> [-1010]</input#></rgb>	Sets the sharpness setting for the selected input. Positive values sharpen the image and negative values soften the image. A value of zero sets the sharpness off.
		Example : To set the sharpness on YPbPr input 4 to 2, use the command:
		sharp ypbpr 4 2
		Default: 0

Table 4-7 Image Control Commands Descriptions (Continued)



4.3.7 Clock and Cursor Commands

These commands are used to enable, position, and format a foreground cursor.

 Table 4-8
 Cursor Commands

Command	Arguments	Description
CLOCKCOLOR	[<redvalue> <greenvalue> <bluevalue>] [WHITE </bluevalue></greenvalue></redvalue>	Selects the clock display color. The user can set the color by setting the red, green, blue values (0255) or using the pre-defined colors.
	BLACK RED GREEN BLUE MAGENTA CYAN YELLOW]	Example : To set the clock to red = 100, green = 50, and blue = 100, enter the command:
		clockcolor 100 50 200
		Default: WHITE
CLOCKEN able	[ON OFF]	Enables and sizes the display of a foreground clock.
		Example: To display a large clock, enter:
		clocken large
CLOCKForMaT	[12 24] <secon <br="">SECOFF>]</secon>	Selects between 12-hour and 24-hour time display for optional on screen clock and to enable or disable the display of seconds.
		Example : To set the clock to a 12-hour format and display the seconds, use the command:
		clockfmt 12 secon
		Default: 24, On
CLOCKPOS ition	<x> <y></y></x>	Sets the coordinates of the clock when displayed. The range of values for x and y will depend on the wall configuration and output timing. Note that the clock cannot be positioned over a mullion.
		Example : To put the clock at the x = 1000 and y= 800, enter the command:
		clockpos 1000 800
CLOCKSIZE	[NORMAL LARGE]	Sets the size of the on-screen clock.
		Example: To set the clock to large, enter:
		clocksize large
CURSORENable	<1 2> [ON OFF]	Turns a cursor on or off.
		Example: To enable cursor 1, type:
		cursoren 1 on



Command	Arguments	Description
CURSORPOSition	<1 2> [<x> <y>]</y></x>	Places the cursor at the specified position on the display wall. The range of x and y values will depend on the wall configuration and output timing.
		Note: Only cursor 1 is currently supported.
		Example : To place cursor 1 at x = 2000 and y =1200, use the command:
		cursorpos 1 2000 1200
CURSORTYPE	<1 2> [UD LR NW NE POINTER]	Sets the type of cursor displayed. Cursor types are:
		Pointer single-ended arrow
		■Up/down double-ended arrow
		Left/right double-ended arrow
		NW/SE double-ended diagonal arrow
		■NE/SW double-ended diagonal arrow Example : To set cursor 1 to a NW/SE diagonal arrow, enter the command:
		cursortype 1 nw

Table 4-8 Cursor Commands (Continued)

4.3.8 Serial Port Commands

Serial Port Commands are used to set communication parameters.

Table 4-9 Serial Port Commands Descriptions

Command	Arguments	Description
BAUDrate	< 9600 19200 38400 57600 115200>	Sets the serial port baud rate. The value is automatically saved in NVRAM.
		Example : To set the baud rate to 38400, enter the command:
		baud 38400
		Default: 115200



Command	Arguments	Description
ЕСНО	<on off="" =""></on>	Turns the serial echo on/off. The value is saved in the NVRAM. The echo is only present on commands typed and sent to the unit from the serial port.
		Note : The Echo setting has no effect on responses issued by the <i>SuperView 4K</i> ; responses are always visible, regardless of the echo status.
		Example: To disable command echo, type:
		echo off
		Default: ON
HANDShaking	[HW SW]	Sets the serial port flow control mode to either hardware (HW) or software (SW). Uses XON/ XOFF flow control in the software flow control mode.
		Example : To use hardware flow control, use the command:
		hands hw
		Default: SW

Table 4-9 Serial Port Commands Descriptions (Continued)

4.3.9 Network Commands

Network Commands control the settings for the *SuperView 4K*'s Ethernet port. The values used in this section are typically provided by your facility's IT specialist. The table below lists all network commands, their arguments and detailed descriptions.

Table 4-10	Network	Commands	Descriptions
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Command	Arguments	Description
FTPP ort	[21 10006500]	Changes the number of the FTP server listening port.
		Example : To set the FTP port to 2000, enter the command:
		ftpp 2000
HTTPPort	[8065000	Changes the number of the web server listening port.
		Example: To change the HTTP listening port to 5000, type the command:
		httpp 5000



Command	Arguments	Description
HOSTNAME	[name]	Sets the system host name. The name can be up to 23 characters in length. Use the underscore character in the place of a space.
		Example : To name the <i>SuperView 4K</i> "Training Room," use the command:
		hostname Training_Room
IPADDRess	[ddd.ddd.ddd]	Sets the IP address for the <i>SuperView 4K</i> . To determine the current IP address, enter the command without an argument.
		Note: New IP address settings will not be applied until the <u>IPUPDate</u> is issued.
		Example : To set the IP address to 190.160.35.185, enter:
		ipadd 190.160.35.185
		Default: 192.168.1.200
IPG ate W ay	[ddd.ddd.ddd]	Sets the IP gateway address. This setting may need to be changed to suit your network's configuration. To determine the current IP gateway, enter the command without an argument.
		Note: New IP address settings will not be applied until the <u>IPUPDate</u> is issued.
		Example : To set the IP gateway to 190.160.35.1, enter:
		ipgw 190.160.35.1
		Default: 192.168.1.1
IPP ort	[100065000]	Sets the IP port for network communication. Without an argument, the current port will be reported.
		Note: New IP address settings will not be applied until the <u>IPUPDate</u> is issued.
		Example: To set the port to 9000, type:
		ipp 9000
		Default: 8000

Table 4-10 Network Commands Descriptions (Continued)



Command	Arguments	Description
IPSubNET	[ddd.ddd.ddd]	Sets the IP subnet mask. This setting may need to be changed to suit the configuration of the network. To determine the current IP subnet setting, enter the command without the subnet mask argument.
		Note: New IP address settings will not be applied until the <u>IPUPDate</u> is issued.
		Example : To set the IP subnet mask to 255.255.255.1, use the command:
		ipsnet 255.255.255.1
		Default: 255.255.255.0
IPUPD ate	[ADDRess GateWay SubNet Port ALL]	This command must be executed for IP address changes to become effective.
		Example : To update the gateway address only, enter the command:
		ipupd gw
MACADDRess	(none)	Display the Ethernet MAC address.
		Note: This is a read-only command.

4.3.10 Macro Commands

The *SuperView 4K* provides the ability to write macros to script a sequence of commands that can be executed automatically. Macros are stored by filename in the *SuperView 4K*.

Table 4-11	Macro	Commands	Descriptions
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Command	Arguments	Description
MACROABORT	(none)	Halt execution of the current macro. Use the MACRORUN command to reload and start the macro.
MACRODELete	<filename></filename>	Delete the specified macro file.
		Example: To delete the macro "Conf_1.txt," use the command:
		macrodel Conf_1.txt
MACROLIST	(none)	Lists the macros currently stored.



Command	Arguments	Description
MACROPAUSE	[duration]	Pauses the currently executing macro for the period defined by the optional duration parameter. Valid duration is from 0.1 to 128 seconds. If no duration is entered the macro will pause indefinitely.
		A paused macro may be resumed using the <u>MACRORESUME</u> command or canceled by using the <u>MACROABORT</u> command.
		Example : To pause the executing macro for one minute, type:
		macropause 60
MACRORESUME	(none)	Restarts a paused macro. The macro will run from the point at which it was paused.
MACRORUN	<filename></filename>	Runs the specified macro.
		Example : To run the macro "Config_2.txt," enter the command:
		macrorun Config_2.txt
MACROSAVE	<filename></filename>	Takes the specified file that has been placed in the <i>SuperView 4K</i> ftp folder and saves it. The ability to rename the file is not supported.
		Example : To save the macro "Config_3.txt", type:
		macrosave Config_3.txt

Table 4-11 Macro Commands Descriptions (Continued)

4.3.11 Miscellaneous Commands

The miscellaneous commands category includes a variety of general *SuperView 4K* functions.

Table 4-12 Miscellaneous Commands Descriptions

Command	Arguments	Description
ClockSYNC	[OFF NTS]	Sets the <i>SuperView 4K</i> to synchronize its clock to an Network Time Server (NTS).
		Example : To synchronize the clock to a NTS, enter the command:
		csync nts
		Default: Off



Command	Arguments	Description
ClockSYNCPERiod	[301440]	Sets the time interval between synchronizations with the NTS, in minutes.
		Example : To resync the clock every two hours, use the command:
		csyncper 120
		Default: 30
Help	[command]	Without an argument, displays the entire command set. With an argument, displays detailed information about that command.
		Example : To display help for the command W indow S ource R ectangle, use the command:
		h wsr
NTSIP	[IP address]	Sets the IP address of a Network Time Server. Up to three IP addresses can be set.
		Example : To set the network time server to address 200.201.1.36, enter the command:
		ntsip 200.201.1.36
PassWORDPROTection	[ON OFF]	Enables or disables password protection. After entering the command you will be prompted to enter the Admin password before the change can become effective.
		Example : To enable password protection, type:
		pwordprot on
		Default: Off
RECALLCONFIG uration	[ON OFF]	Manually recalls (restores) customer configuration parameters that were manually saved by the SAVECONFIG uration command.
		Note: The configuration is automatically saved after every change. The system configuration is automatically restored following a power cycle. This command could be used as the user-specified alternative to RestoreFactoryDefaults.
		See also: SAVECONFIGguration.
RestoreFactoryDefaults	(none)	Restores all user settings to their factory default values and restarts the system.

Table 4-12 Miscellaneous Commands Descriptions (Continued)



Command	Arguments	Description
SAVECONFIGguration	(none)	Forces an update and explicit save of the system's NVRAM. This is used to provide user defined default settings.
		Note: These settings are loaded only when the RECALLCONFIG uration command is used. The configuration that is loaded following a power cycle or SYSRST command represents the state of the machine prior to loss of power, not those saved by the SAVECONFIG uration command.
		See also: RECALLCONFIGuration.
SETPASSword	<-ADMIN -USER>	Changes the password. When the Advanced WCP option is installed, separate passwords may be entered for the Admin and User; without the option, no user password is supported. After entering the command, a prompt to enter the new password is displayed. Passwords are case sensitive.
		Example : To change the Admin password, type:
		setpass -admin
		Note : When the Advanced WCP option is installed, passwords can only be changed when logged in as the Admin.
		Default: RGB

Table 4-12 Miscellaneous Commands Descriptions (Continued)



Command	Arguments	Description
SETTINGSEXPORT	[TIMING WINDOW SYSTEM ALL] [filename.txt]	This command provides the ability to store <i>SuperView 4K</i> settings and export them to an external computer. This is useful in backing up settings, or providing the ability to "clone" the settings of multiple <i>SuperView 4K</i> s.
		Storing this data is a two step process.
		 Create a text file that is stored in the <i>SuperView 4K</i> memory. Upload this file to your PC. Note: You can specify your own file name using the optional filename argument. The default filename is export.txt.
		To save timing, window, and system parameters together use the ALL argument; issuing the command without an argument will also accomplish this.
		If you wish to save only the user defined timing values, use the TIMING argument.
		To save only the window preset parameters for each active preset, use the WINDOW argument.
		To save only the system parameters for the current settings use the SYSTEM argument. Note that this does not include the settings saved in the SAVECONFIG register.
		Example : To save the timing settings to the file "Display1.txt," enter the command:
		settingsexport timing Display1.txt
		To save settings, use the following procedure:
		 Create the file using the SETTINGSEXPORT command. Log in to the SuperView 4K FTP server. For command line FTP, log on to the FTP server and type the command get export.txt to move the file from the SuperView 4K to your PC. Alternately, use Windows Explorer to drag and drop the file from the SuperView 4K to the PC. See also: <u>SETTINGSIMPORT</u>.

Table 4-12	Miscellaneous	Commands	Descriptions ((Continued)
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Command	Arguments	Description	
SETTINGSIMPORT	<filename.txt></filename.txt>	This command provides the ability to restore or set system settings (or cloning a new system) to match the configuration of a different <i>SuperView 4K</i> unit. Accepts the text file created using the SETTINGSEXPORT command.	
		Use the following procedure to import settings from your PC.	
		 For command line FTP, use the Linux command put <filename> to place the file into the SuperView 4K memory. (<filename> is the name of the file created using the SETTINGSEXPORT command).</filename></filename> 	
		 Alternately, log in to the SuperView 4K FTP server. Refer to Browser FTP, page 4 for more info. 	
		 From the Telnet or serial port issue the command SETTINGSIMPORT <filename>. Note that if you use the default filename "export.txt you do not need to specify the filename.</filename> See also: SETTINGSEXPORT. 	
SYStemINFO	(none)	Displays the following information:	
		 Product name Product identification Firmware version number FPGA version numbers Manufacturing date IP address parameters Serial number 	
SYStemReSeT	(none)	Restarts the <i>SuperView 4K</i> control system. This will have the same effect as rebooting from power-off.	
SYStemTIME	[YYYY MM DD HH MM SS]	When time parameters are provided this command sets the internal <i>SuperView 4K</i> real- time clock. When time parameters are not included, it will report the current time. Example : To set the system time to 2:00 pm, January 6, 2011, enter the command:	
		systime 2011 01 06 14 00 00	
TestPattern	[OFF RRAMP GRAMP BRAMP WRAMP HRRAMP HGRAMP HBRAMP HWRAMP BARS HBARS ALIGN RAMPS]	Turns on the designated test pattern. Use the OFF argument to turn the current test pattern off. Example: To display test pattern bars, enter the command: tp bars Default: OFF	

Table 4-12	Miscellaneous	Commands	Descriptions	(Continued)
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Command	Arguments	Description
TimeZone	[-12 +12]	Sets the timezone relative to UTC, For example Pacific Standard Time (PSRT) is -8 (8 hours behind UTC). The unit must be rebooted before the new timezone takes effect. Without an argument, the command returns the current timezone value.
		Example : To set the timezone to Eastern Standard Time, enter the command:
		tz -5
UpdateFirmWare	(none)	Loads new firmware into the SuperView 4K.
		This is a two step process.
		 The new firmware must be first be downloaded to the <i>SuperView 4K</i>. Load the new firmware use the UFW command. See <u>Chapter</u> for complete instructions on updating firmware.
VERsion	(none)	Returns firmware and hardware revision information.

Table 4-12 Miscellaneous Commands Descriptions (Continued)



4.4 Timing Parameters

<u>Table 4-13</u> lists timing parameters used for both the input and output timing functions. Advanced users can use the table to assist with values listed in the <u>Factory Timing List</u>.

For example, if you type INTM <input#> to query the system's Input timing values, you will get a string of values (<hfp> <hs> <hbp> <hact> <vfp> <vs> <vbp> <vact>) that represent *SuperView 4K*'s settings for that input. The table below will greatly assist in clarifying each value's meaning.

Parameter	Definitions	Comments
HFP	horizontal front porch	The beginning of the horizontal blanking interval.
HS	horizontal sync	The width of the horizontal synchronizing pulse
HBP	horizontal back porch	The end of the horizontal blanking interval. The total horizontal blanking = HFP + HS + HBP.
НАСТ	horizontal active	The active picture interval (non-blanked portion of the image). The total pixel count per line = HACT + HFP + HS + HBP.
VFP	vertical front porch	The part of vertical blanking prior to the vertical sync.
VS	vertical sync	The width of the vertical sync period.
VBP	vertical back porch	The part of the vertical blanking signal following the vertical sync interval.
VACT	vertical active	The number of active lines of picture.
VTOT	total vertical line count	This parameter is measured by <i>SuperView 4K</i> . Users may not define this value, but the sum of VFP + VS + VBP + VACT must equal VTOT.
HFREQ	horizontal frequency	This parameter is measured by <i>SuperView 4K</i> . This is a read only parameter for inputs. For outputs HFREQ can be set using this command.
		This command applies to analog inputs only.
		In 3-wire sync systems the H and V sync signals are combined with the Green signal.
SYNC	sync format	In 4-wire sync systems the H and V sync signals are combined and transmitted on a dedicated wire.
	oyno ionnat	5-wire systems the H and V signals are transmitted on separate dedicated wires.
		3,4 and 5 wire sync signals are bi-level sync signals. Some HDTV formats use tri-level sync signals (3-wire only). These are indicated using the letter T .

Table 4-13 Definitions and Ranges for Timing Parameters



Parameter	Definitions	Comments
HPOL	horizontal sync polarity	The value 1 represents positive sync polarity and the value 0 represents negative sync polarity. Typically the horizontal and vertical sync have the same polarity. Note that 3-wire sync is always negative polarity.
VPOL	vertical sync polarity	The value 1 represents positive sync polarity and the value 0 represents negative sync polarity. Note that 3- wire sync is always negative polarity.
IL	interlaced/non- interlaced	The value 1 represents interlaced scan and 0 represents non- interlaced (progressive) scan. Note that video signals are typically interlaced, and graphics signals are typically non-interlaced.

Table 4-13	Definitions	and Ranges	for Timina	Parameters	(Continued)

4.5 Factory Timing List

The table below lists all of *SuperView 4K*'s preset timings that can be used for **Output** or **Input** timing settings. Available output timings will depend on the mode: single-link or dual-link. Userdefined settings can be added too. These settings are used to match the system's output to that of the display device or can be used to manually define input timing.

Columns are provided for the timing ID, plus all of the individual parameters such as frequency, sync, polarity, interlace and many more.

- Entries 1 82 are factory defined timing parameters.
- Entries 76 82 are for dual-link use only.
- Entries 83 99 are reserved for future pre-defined parameters.
- Entries 100 160 are for user-defined timings.
- Because all parameters can be modified with the <u>INputTiMing</u> and <u>OutPutTiMing</u> functions, advanced users can modify timing settings and then store them using the <u>INputSAVE</u> and <u>OutPutTiMingSAVE</u> functions.
- Custom settings can also be named using the INputNAME and OutPutTiMingNAME functions.

NUM	NAME	HFP	HS	HBP	НАСТ	VFP	VS	VBP	VACT	HFREQ	SYNC	HPOL	VPOL	IL
1	VESA_640x350_85Hz	32	64	96	640	32	3	60	350	37861	5	1	0	0
2	VESA_640x400_85Hz	32	64	96	640	1	3	41	400	37861	5	0	1	0
3	VESA_720x400_85Hz	36	72	108	720	1	3	42	400	37927	5	0	1	0
4	VESA_640x480_60Hz	16	96	48	640	10	2	33	480	31469	5	0	0	0
5	VESA_640x480_72Hz	24	40	128	640	9	3	28	480	37861	5	0	0	0
6	VESA_640x480_75Hz	16	64	120	640	1	3	16	480	37500	5	0	0	0
7	VESA_640x480_85Hz	56	56	80	640	1	3	25	480	43269	5	0	0	0
8	VESA_800x600_56Hz	24	72	128	800	1	2	22	600	35156	5	1	1	0

Table 4-14 Factory Timing List



NUM	NAME	HFP	HS	HBP	HACT	VFP	VS	VBP	VACT	HFREQ	SYNC	HPOL	VPOL	IL
9	VESA_800x600_60Hz	40	128	88	800	1	4	23	600	37879	5	1	1	0
10	VESA_800x600_72Hz	56	120	64	800	37	6	23	600	48077	5	1	1	0
11	VESA_800x600_75Hz	16	80	160	800	1	3	21	600	46875	5	1	1	0
12	VESA_800x600_85Hz	32	64	152	800	1	3	27	600	53674	5	1	1	0
13	VESA_800x600_120RB	48	32	80	800	3	4	29	600	76302	5	1	0	0
14	VESA_848x480_60Hz	16	112	112	848	6	8	23	480	31020	5	1	1	0
15	VESA_1024x768_43Hz	8	176	56	1024	0	4	20	384	35522	5	1	1	1
16	VESA_1024x768_60Hz	24	136	160	1024	3	6	29	768	48363	5	0	0	0
17	VESA_1024x768_70Hz	24	136	144	1024	3	6	29	768	56476	5	0	0	0
18	VESA_1024x768_75Hz	16	96	176	1024	1	3	28	768	60023	5	1	1	0
19	VESA_1024x768_85Hz	48	96	208	1024	1	3	36	768	68677	5	1	1	0
20	VESA_1024x768_120RB	48	32	80	1024	3	4	38	768	97551	5	1	0	0
21	VESA_1152x864_75Hz	64	128	256	1152	1	3	32	864	67500	5	1	1	0
22	VESA_1280x768_60RB	48	32	80	1280	3	7	12	768	47396	5	1	0	0
23	VESA_1280x768_60Hz	64	128	192	1280	3	7	20	768	47776	5	0	1	0
24	VESA_1280x768_75Hz	80	128	208	1280	3	7	27	768	60289	5	0	1	0
25	VESA_1280x768_85Hz	80	136	216	1280	3	7	31	768	68633	5	0	1	0
26	VESA_1280x768_120RB	48	32	80	1280	3	7	35	768	97396	5	0	1	0
27	VESA_1280x800_60HRB	48	32	80	1280	3	6	14	800	49306	5	1	0	0
28	VESA_1280x800_60Hz	72	128	200	1280	3	6	22	800	49702	5	0	1	0
29	VESA_1280x800_75Hz	80	128	208	1280	3	6	29	800	62795	5	0	1	0
30	VESA 1280x800 85Hz	80	136	216	1280	3	6	34	800	71554	5	0	1	0
31	 VESA 1280x800 120RB	48	32	80	1280	3	6	38	800	101563	5	1	0	0
32	 VESA_1280x960_60Hz	96	112	312	1280	1	3	36	960	60000	5	1	1	0
33	VESA 1280x960 85Hz	64	160	224	1280	1	3	47	960	85938	5	1	1	0
34	VESA_1280x960_100RB	48	32	80	1280	3	4	40	960	100694	5	1	1	0
35	VESA_1280x1024_60Hz	48	112	248	1280	1	3	38	1024	63981	5	1	1	0
36	VESA_1280x1024_75Hz	16	144	248	1280	1	3	38	1024	79976	5	1	1	0
37	VESA_1280x1024_85Hz	64	160	224	1280	1	3	44	1024	91146	5	1	1	0
38	VESA_1360x768_60Hz	64	112	256	1360	3	6	18	768	47712	5	1	1	0
39	VESA 1360x768 120RB	48	32	80	1360	3	5	37	768	97533	5	1	0	0
40	VESA_1366x768_60Hz	70	143	213	1366	3	3	24	768	47712	5	1	1	0
41	VESA_1400x1050_RB	48	32	80	1400	3	4	23	1050	64744	5	1	0	0
42	VESA_1400x1050_60Hz	88	144	232	1400	3	4	32	1050	65316	5	0	1	0
43	VESA_1400x1050_75Hz	104	144	248	1400	3	4	42	1050	82278	5	0	1	0
44	VESA_1440x900_60RB	48	32	80	1440	3	6	17	900	55469	5	1	0	0
45	VESA_1440x900_60Hz	80	152	232	1440	3	6	25	900	55935	5	0	1	0
46	VESA_1440x900_75Hz	96	152	248	1440	3	6	33	900	70635	5	0	1	0
47	VESA_1440x900_85Hz	104	152	256	1440	3	6	39	900	80430	5	0	1	0
48	VESA 1600x1200 60Hz	64	192	304	1600	1	3	46	1200	75000	5	1	1	0
49	VESA_1680x1050_60RB	48	32	80	1680	3	6	21	1050	64674	5	1	0	0
50	 VESA_1680x1050_60	104	176	280	1680	3	6	30	1050	65290	5	0	1	0
51	 VESA 1920x1200 60RB	48	32	80	1920	3	6	26	1200	74038	5	1	0	0
52	EIA-343-A 675 lines	16	56	64	832	3	3	20	312	20253	3	0	0	1
53	EIA-343-A_729_lines	20	64	80	900	3	3	22	337	21870	3	0	0	1
54	EIA-343-A 875 lines	26	96	118	1080	3	3	27	404	26245	3	0	0	1
55	EIA-343-A 945 lines	36	112	140	1164	3	3	29	437	28343	3	0	0	1
56	EIA-343-A 1023 lines	44	136	164	1260	3	3	30	473	30692	3	0	0	1
57	720x480,29.97i	16	61	61	720	3	3	14	242	15734	3	0	0	1
58	720x576,25i	12	66	66	720	2.5	2.5	20.0	287	15625	3	0	0	1
59	960x480,29.97i	22	81	81	960	3	3	14	242	15734	3	0	0	1
	,													

Table 4-14 Factory Timing List (Continued)



NUM	NAME	HFP	HS	нвр	HACI	VEP	vs	VBP	VACI	HEREQ	SYNC	HPOL	VPOL	IL
60	960x576,25i	16	88	88	960	2.5	2.5	20.0	287	15625	3	0	0	1
61	1280x720,24Hz	2585	40	220	1280	5	5	20	720	18000	5	1	1	0
62	1280x720,30Hz	1760	40	220	1280	5	5	20	720	22500	5	1	1	0
63	1280x720,50Hz	440	40	220	1280	5	5	20	720	37500	5	1	1	0
64	1280x720,60Hz	110	40	220	1280	5	5	20	720	45000	5	1	1	0
65	1920x1080,24i	638	44	148	1920	2	5	15	540	27000	5	1	1	1
66	1920x1080,24p	638	44	148	1920	4	5	36	1080	27000	5	1	1	0
67	1920x1080,25i	528	44	148	1920	2	5	15	540	28125	5	1	1	1
68	1920x1080,30i	88	44	148	1920	2	5	15	540	33750	5	1	1	1
69	1920x1080,30p	88	44	148	1920	4	5	36	1080	33750	5	1	1	0
70	1920x1035,30i	88	44	148	1920	5	5	35	517	33750	5	1	1	1
71	1920x1080,60p	88	44	148	1920	4	5	36	1080	67500	5	1	1	0
72	SonyDCI_2048x1080,60	24	44	84	2048	4	5	36	1080	67500	5	1	1	0
73	2048x1152,60p	48	32	80	2048	3	5	25	1152	70992	5	1	0	0
74	SonyDCI_2048x1080,24	510	44	148	2048	4	5	36	1080	27000	5	1	1	0
75	720x480,60p	16	62	60	720	9	6	30	480	31500	5	0	0	0
76	DLVESA_1920x1440_60	128	208	344	1920	1	3	56	1440	90000	5	0	1	0
77	DLVESA_1920x1440_75	144	224	352	1920	1	3	56	1440	112500	5	0	1	0
78	DLVESA_2048x1536_60	152	224	376	2048	3	4	49	1536	95446	5	0	1	0
79	DLVESA_2560x1440_60R	48	32	80	2560	3	5	33	1440	88787	5	1	0	0
80	DLVESA_2560x1600_60R	48	32	80	2560	3	6	37	1600	98713	5	1	0	0
81	DL1920x2160,60Hz	16	16	48	1920	1	1	6	2160	130080	5	1	0	0
82	DL1920x2160,50Hz	16	16	48	1920	10	1	329	2160	120000	5	1	0	0

Table 4-14 Factory Timing List (Continued)

CHAPTER 5

PARAMETER STORAGE AND FIRMWARE UPDATE

This chapter provides information on technical procedures for saving parameters and updating firmware on the *SuperView 4K*. It is divided into the following sections:

- Parameter Storage
- Firmware Updates

5.1 Parameter Storage

This section describes the categories of settings that are stored in *SuperView 4K* and how these settings are stored and retrieved.

5.1.1 Factory Defaults

The *SuperView 4K* is shipped from the factory loaded with settings (parameters) known as Factory Defaults. As soon as you begin to use the unit, these default settings will be replaced with your new settings. Your new settings are automatically stored by the *SuperView 4K* in non-volatile memory so the next time you turn on the unit, it will start operating with the most recent settings.

If you want to return to the factory settings, this can be accomplished by executing the **RestoreFactoryDefaults** command (Chapter 4),

Note

Restoring Factory Defaults will not affect the IP address settings of your SuperView 4K.

5.1.2 User Configuration

SuperView 4K provides the ability for you to save your own set of default settings. This allows you to override the current settings and set up the unit in a way that you have previously defined. The <u>SAVECONFIGguration</u> command (<u>Chapter 4</u>), provides a manual way to save the current system settings into non volatile memory. The settings may then be loaded at any time using the <u>RECALLCONFIGuration</u> command. This is equivalent to using the <u>RestoreFactoryDefaults</u> command, but using your own set of default values instead of the factory defined parameters.

5.1.3 Settings Export/Import

In addition to storing settings internally in non-volatile memory, the SuperView 4K provides the ability to copy settings to an external device such as a PC. The settings are stored in a text file that can be transferred to or from the external device. This file can be generated to contain all the system settings, or a subset of the settings as outlined below. If the SETTINGSEXPORT command is not provided with an argument, then the default state ALL will cause the generated file to contain the complete set of parameters consisting of the SYSTEM, TIMING and WINDOW settings.

```
Note
```

Recalling previously stored parameters will change the operation of your unit. Because there is no undo feature, we recommend that you have a backup copy of your preferred settings. The copy is stored internal to the SuperView 4K using the SAVECONFIGguration command.

SYSTEM

SETTINGSEXPORT using the SYSTEM option will result in a text file that stores the system parameters as listed in the System State Values section later in this chapter

TIMING

SETTINGSEXPORT using the TIMING option will result in a text file that stores the values for the output and all inputs as listed in the Timing Presets section later in this chapter.

WINDOW

SETTINGSEXPORT using the WINDOW option will result in a text file that stores the values for the Window preset settings as listed in the Window Presets section later in this chapter.

5.1.4 System State Values

There are several categories of system values (parameters) that are saved, and these are outlined in the following section:

INPUT TIMING VALUES

Timing values for each graphics input:

- Timing preset number
- Timing preset name
- Horizontal front porch, sync width, back porch, and active area (in pixels)
- Vertical front porch, sync height, back porch, and active area (in lines)
- Sync format
- Horizontal and vertical sync polarities
- Interlaced/Non-interlaced
- Autosync mode



IMAGE CONTROLS

The following parameters are stored for each input:

- Input source
- ADC sample phase
- De-interlace mode
- ADC gain and offset values for red, green, and blue channels
- Brightness, contrast, hue, saturation and sharpness
- Window labels

OUTPUT CHANNEL

The following parameters are stored for the SuperView 4K output:

- Gamma
- Output sync source
- Background color values

OUTPUT TIMING VALUES

- Timing preset number
- Timing preset name
- Horizontal front porch, sync width, back porch, and active area (in pixels)
- Vertical front porch, sync height, back porch, and active area (in lines)
- Horizontal and vertical frequencies
- Sync format
- Horizontal and vertical sync polarities
- Output reference mode
- Aspect ratio

WINDOW SETTINGS

The following parameters are stored for each window

- Enable
- Source rectangle dimensions (X, Y, width, height)
- Destination rectangle dimensions (X, Y, width, height)
- Label enable, position, justification, label color, label background color
- Priority
- Border width, border color

CONFIGURATION VALUES

- X and Y repeat rates used in interactive window position and pan
- Scale step used in interactive window size and zoom

SERIAL PORT SETTINGS FOR RS-232 CONTROL PORT

- Baud rate
- Echo
- Handshaking

5.1.5 Window Presets

SuperView 4K is capable of storing up to 50 window presets containing the following parameters:

- Source selection for each input
- Enables for each window
- Source rectangle dimensions for each window
- Destination rectangle dimensions for each window
- Label enable, position, justification, label text, color, and background color for each window
- Zoom and pan settings for each window
- Priority for each window
- Border width and color for each window
- Window preset name

5.1.6 Timing Presets

In addition to the factory supplied timing presets, the user may save and recall up to 61 timing presets. Note that the *SuperView 4K* has a common timing list that can be applied to either input or output ports.

There are three ways to create a timing preset entry. The first two are listed immediately below. Note that they store a limited number of timing parameters as listed in the timing preset list.

Output Timing

Timing presets may be created by saving output timing settings using the **OutPutTiMingSAVE** command.

Direct loading

Timing presets may be created by directly loading them using the **<u>TiMingLISTLOAD</u>** command.

Timing presets contain the following parameters:

- Timing preset name
- Horizontal front porch, sync width, back porch, and active area (in pixels)
- Vertical front porch, sync height, back porch, and active area (in lines)

- Horizontal and vertical frequencies
- Sync format
- Horizontal and vertical sync polarities
- Interlace

Timing presets created by saving input timing using the **<u>INputSAVE</u>** command will contain all of the above settings in addition to the following supplemental parameters:

- ADC sample phase
- De-interlace mode
- ADC gain and offset values for red, green, and blue channels

5.2 Firmware Updates

From time to time, new features or improvements are made to the *SuperView 4K* firmware. Your system's firmware can be updated on-site as soon as you have a copy of the new firmware. Please visit our website (www.rgb.com) and click on **Support** for current firmware versions.

You can identify your current firmware version numbers from the System page on your *SuperView 4K* WCP or use the command **VER** from the command line interface.

5.2.1 Downloading New Firmware

Firmware updates are posted in the Support section of the RGB Spectrum web site. Download the file to the PC that you will be using to communicate with *SuperView 4K*.

Noto	The firmware file is provided in compressed form. The file will be uncompressed
NOLE	automatically by the SuperView 4K. Do not uncompress or rename the file.

5.2.2 Updating System Firmware Notes

The firmware in the *SuperView 4K* can be field updated only via the Ethernet port. This means that your PC will need to be connected to the *SuperView 4K* directly or through a network connection.

The following two items are required for this procedure:

- Computer configured for a 100/1000 BASE-T network connection.
- Current firmware update file and update instructions.

Important	If you want to update using a direct connection from a PC to the SuperView 4K (not
important	using a network), then be sure to use a crossover cable.

5.2.3 Saving System Settings

It is advisable to save a copy of the system settings before beginning the update procedure. This is not a requirement of the update process, but is a useful precaution in case there is an unexpected glitch in the update process that affects the internal storage of settings.

Use the following procedure to save current settings to a PC.

- **1.** Open a Telnet session. Follow the procedure outlined in , page 3.
- 2. Save the current settings to the PC. On the Telnet command line type:

settingsexport all <filename.txt>

where **<filename.txt>** is the name of the settings file that will be used to save the *SuperView 4K* settings to your PC.

Upper and lower case letters and numbers may be used in the filename, but avoid the use of spaces or "/" and "\" characters (use of the underscore character instead of a space is recommended).

Follow the instructions in Chapter 1 to transfer the export settings to your PC.

5.2.4 Manual Update

The update procedure is a two-step process.

- Transfer the new firmware version from the PC to the SuperView 4K.
- Update the SuperView 4K.
- Follow the procedures described in <u>Chapter 1</u> to transfer the new firmware file from the PC to the SuperView 4K
- **2.** Update the firmware.
 - Open a Telnet session entering the SuperView 4K IP address and the port number 8000. If you do not know the current IP address of the SuperView 4K, it can be found on the front panel display.
 - To confirm you have established communications, press the ENTER key. You should see the > symbol indicating that you have successfully started a Telnet session.
 - From the Telnet command line type the command **ufw**.
 - The SuperView 4K displays a message telling you to transfer the update file to the SuperView 4K via FTP.
 - If the firmware update file has been transferred, press **y** to continue. Or you can press **n** to exit the update process.

If you chose to begin the update, the *SuperView 4K* will proceed to load the file. You will see status on the Telnet window as the update process backs up current firmware, extracts new firmware and shuts down the system.



Important

This process will take between one and two minutes. **DO NOT** turn the *SuperView 4K* off or remove AC power until the update is complete.

- Turn off the power, wait for a approximately five seconds and reapply power to the unit.
- You will need to restart the Telnet session. Once Telnet control has established, type the command ver from the SuperView 4K Telnet command line to verify that the new firmware is loaded.

5.2.5 Restoring Settings

This step is typically not required, and is included only in the event that an unexpected error occurs in the update process. If your settings are normal, you can ignore this procedure.

- Follow the FTP instructions in <u>Chapter 1</u> to move the exported settings back to the SuperView 4K.
- 2. Open a Telnet session and restore the saved settings from the PC. On the Telnet command line type:

settingsimport <filename.txt>

where **<filename.txt>** is the name of the used to save the *SuperView 4K* settings to your PC.

5.3 Firmware Update Assistant

A **Firmware Update Assistant** may be accessed from the browser startup page. When the IP address of the unit is initially entered, the WCP startup screen will be displayed for five seconds to allow the selection of an option.

SuperView 4K Control Panel	
Please select one of the following options.	
Launch Web Control Panel	
Preset Touch Pad	
Update Firmware	
Please note that WCP will automatically launch after 5 seconds.	
If WCP does not launch after 5 seconds, click on "Launch WCP".	

Figure 5-1 WCP Startup Display

This utility saves and exports the current settings before performing the update, and restores them following the update.

Use the following steps to update the *SuperView 4K* firmware.

1. From the WCP start-up, select **Update Firmware**. The **Firmware Update Assistant** opens in the browser.

RGB	FIRMWARE UPDATE ASSISTANT							
Enter t	Enter the IP Address of the Display Processor : Connect							
	Display Processor Information							
	Next							
@ Copyright 201	0 RGB Spectrum Inc , 950 Marina Village Parkway Alameda, CA 94501 510-814-7000 fax 510-814-7026							

Figure 5-2 Firmware Update Assistant

2. Enter the IP address of the display processor to be updated. Information about the unit is displayed including the current firmware version and installed options.



Figure 5-3 SuperView 4K Properties

- **3.** Browse to the location of the new firmware.
- 4. Click **Update**. Confirm the start of the update by clicking **Yes**.

The update progress is displayed. When the update is complete, close the web page.

Choose the Upgrade File : C:\Firmware\FWTIG_2.2.tgz Open Upgrade
 Progress Monitor
initializing File C:VFirmwareVFWTIG_2.2.tgz has been moved to the display processor Exporting the settings to the local computer
Settings Exported II Upgrading and Restarting display processor might take some time.Please be patient 10% Completed
20% Completed 30% Completed 40% Completed 50% Completed
60% Completed 70% Completed System settings are being restored
100% Completed

Figure 5-4 Progress Monitor

CHAPTER 6

MAINTENANCE AND SERVICE

Customer replaceable parts on the *SuperView 4K* include the power supply and the foam filter. They may be ordered from RGB Spectrum by requesting the following part numbers.

- Power Supply 860 9843-01
- Foam Filter 410 10104-01

6.1 Air Filter Replacement

A clean air filter is necessary for proper operation of the *SuperView 4K*. A clogged filter may cause the unit to overheat. When operated in a clean environment, the filter should be checked about once a month. Where dust and dirt are a problem, the filter should be inspected on a weekly basis.

Use the following procedure to replace an air filter.

- **1.** Turn off the AC power switch.
- 2. Remove the six screws that hold the filter cover on the front of the chassis. Use a #0 Phillips screwdriver.



Figure 6-1 Filter Cover Screws



- 3. Remove the filter cover.
- **4.** Gently remove the foam filter.



Figure 6-2 Removing the Air Filter

- 5. Insert the new or cleaned filter.
- 6. Replace the filter cover and secure it with the six screws.
- **7.** Power the unit on again.

6.2 Cleaning an Air Filter

Filters which are neither torn nor shredded may be washed and reused. Follow these instructions to clean a filter.

- **1.** Wash the filter in mild dish detergent.
- 2. Rinse in clear water.
- 3. Press it between paper towels to remove excess moisture.
- 4. Allow to air dry before replacing it in the SuperView 4K.

6.3 Power Supply Replacement

The unit may remain powered on when a second supply is inserted or removed. Power supplies may be replaced without disassembly of the unit. Follow these steps to replace a power supply:

- 1. Remove the power cord from the supply to be replaced.
- 2. Push the black lever to the left, towards the power connector, and pull the supply out of the unit.





Figure 6-3 Power Supply Release Lever

- 3. Slide the new power supply into place until it clicks, locking it into the chassis.
- **4.** Replace the power cord.

6.4 Adding a Second Power Supply

1. Remove the two screws which secure the plate over the supply receptacle.)



Figure 6-4 Power Supply Cover Plate



- 2. Remove the plate.
- **3.** Slide the supply in until it locks into position.



Figure 6-5 Slide in Second Supply

Save the cover plate and screw. The plate must be re-installed if the second power supply is removed.



7.1 DVI-I Connectors

The DVI connector is used to connect graphics devices. This is a standard connector based on the work of the Digital Display Working Group (DDWG).

7.1.1 Connector Type and Pin-outs

The *SuperView 4K* uses a 29-pin DVI-I connector, supporting digital signals and analog RGB or YPbPr signals.



Figure 7-1 DVI-I Connector

The 29-pin DVI-I connector has the following pin assignments: Input Cables

Pin	Signal	Description
1	TMDS data 2-	
2	TMDS data 2+	
3	TMDS data 2/4 shield	
4	TMDS data 4-	Defined for dual-link only
5	TMDS data 4+	Defined for dual-link only
6	DDC clock	
7	DDC data	
8	Analog vertical sync	Horizontal sync is on pin C4
9	TMDS data 1-	
10	TMDS data 1+	

 Table 7-1
 DVI-I Connector Pin-Outs



Pin	Signal	Description
11	TMDS data 1/3 shield	
12	TMDS data 3-	Defined for dual-link only
13	TMDS data 3+	Defined for dual-link only
14	+5V power	5V fused @ 300mA.
15	Ground	
16	Hot Plug detect	
17	TMDS data 0-	
18	TMDS data 0+	
19	TMDS data 0/5 shield	
20	TMDS data 5-	Defined for dual-link only
21	TMDS data 5+	Defined for dual-link only
22	TMDS clock shield	
23	TMDS clock+	
24	TMDS clock-	
C1	Analog red	
C2	Analog green	
C3	Analog blue	
C4	Analog horizontal sync	
C5	Analog ground	Return for R, G, and B signals

Table 7-1 DVI-I Connector Pin-Outs (Continued)

7.1.2 Input Cables

Standard cables are available commercially for various lengths to allow connection to DVI graphics outputs.

Note

Break-out cables (e.g., DVI-I to DVI-D + 5x BNC RFBHV) are commercially available.

7.1.3 Output Cables

Digital outputs of the *SuperView 4K* are provided on the DVI output connector. Purpose built cables are available commercially to provide connections for digital interfaces.



7.2 HDMI Connector



Figure 7-2 HDMI Connector

Table 7-2 HDMI Pin-Outs

Pin	Function	
1	TMDS Data2+	
2	TMDS Data2 Shield	
3	TMDS Data2–	
4	TMDS Data1+	
5	TMDS Data1 Shield	
6	TMDS Data1–	
7	TMDS Data0+	
8	TMDS Data0 Shield	
9	TMDS Data0–	
10	TMDS Clock+	
11	TMDS Clock Shield	
12	TMDS Clock–	
13	CEC	
14	Reserved	
15	SCL (I ² C Serial Clock for DDC)	
16	SDA (I ² C Serial Data Line for DDC)	
17	DDC/CEC/HEC Ground	
18	+5 V Power (max 50 mA)	
19	Hot Plug Detect (All versions) and HEC Data+	



7.3 Ethernet Connector

The Ethernet connector is a standard RJ-45 connector.



Figure 7-3 Ethernet Connector

7.3.1 Connector Type and Pin-outs

The 8-pin Ethernet connector has the following signals:.

Pin	Signal	Wire Color
1	TX data +	White/orange
2	TX data -	Orange
3	RX data+	White/green
4		Blue
5		White/blue
6	RX data-	Green
7		White/brown
8		Brown

Table 7-3 Ethernet Connector Pin-outs

7.3.2 Standard Cables

Standard Ethernet cables are available commercially in many different lengths. The standard cable is wired pin-for-pin (straight through) which means that pin 1 of the connector at one end of the cable is wired to pin 1 of the connector at the opposite end of the cable. This type of cable is used to connect the *SuperView 4K* directly to the network — typically using an Ethernet hub or switch. To connect directly from a PC to the *SuperView 4K*, a cross-over cable must be used (see the following section for details).

7.3.3 Crossover Cables

To connect directly from a PC (such as a laptop) to the *SuperView 4K* without connecting to the network, an Ethernet cross-over cable must be used. Crossover cables are available commercially.



In a crossover cable, one end of the cable is wired as a straight through cable, using the pin assignments shown in <u>Table 7-3</u>. At the other end of the cable, the TX and RX interconnections are exchanged.

Ethernet uses balanced differential signals on twisted pairs of conductors. It is important to use wires from the same pair for each pair of signals. The standard pairs are shown in **Table 7-3**. Note that one wire of the pair has a solid color. The other wire (of the pair) is white with a stripe of the same color as the first wire (e.g., orange and white/orange).

7.4 RS-232 Connector

The RS-232 port is configured according to the Electronic Industries Association Standard RS-232-C published in August 1969. The *SuperView 4K* can be explicitly controlled with ASCII Command Set instructions sent via the RS-232 serial port from either a computer or an ASCII terminal.

Physically, the RS-232 port is a 9-pin, D-Sub female connector. The pins for the RS-232 connector are numbered from top to bottom, right to left. Looking at the connector, pin #1 is located in the upper right corner, and pin #9 is in the lower left corner.



Figure 7-4 RS-232 Female Connector

The 9-pin D-Sub connector has the following signals:

Table 7-4	RS-232 Serial	Connector	Pin-outs
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Pin	Circuit	Description
1	CD	Carrier Detect
2	TD	Transmit Data
3	RD	Received Data
4		(not connected)
5	AB	Signal Ground (common return)
6	DSR	Data Set Ready
7	CTS	Clear to Send
8	RTS	Request to Send
9		(not connected)
CHAPTER 8 TECHNICAL SPECIFICATIONS

This chapter provides the following detailed tables of functional and performance specifications:

- System Specifications
- Input Specifications
- DVI Output Specifications
- Window Control Specifications
- <u>Control Specifications</u>
- Power and Physical Specifications

8.1 System Specifications

The table below lists SuperView 4K system characteristics.

Table 8-1	System	Characteristics
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Parameter	Specification	
Number of windows	A maximum of 8 windows may be displayed.	
Input types	The user may select between the following types for each input channel: RGB YP_bP_r component (HDTV) DVI HDMI 	
Output channels	4x DVI single-link or 2x DVI dual-link	
Clock rate	35 to 165 MHz, single-link; 165 to 300 MHz, dual-link	
Frame rate (refresh rate)	24 to 100 Hz	
Display Resolution	2k single-link mode: up to 1920x1200, HD to 2028x1080p 4k single-link mode:4x single-link DVI – 3840x2160om 4096x2160p 4k dual-link mode: 2x dual-link DVI – up to 2560x1600p per output	



8.2 Input Specifications

Parameter	Specification
Number/type	8 analog RGB/YP _b P _r /HD
Video level	1.0 V peak-to-peak for G and Y composite, 0.7 V peak-to-peak for RB and PbPr
Input impedance	75 Ohms
Sample rate	Up to 165 MHz
Horizontal scan rate	12 KHz to 125 KHz
Frame rate	Up to 200 Hz
Resolution	640x480 to 1900x1200 and 2048x1152m 720pm 1080i, 1080p
Interlaced Input	Up to 1920x1080i on inputs 1, 2, 5, and 6 only.
Sync	RGsB, RGBS, RGBHV, YPrPb (tri-level or bi-level sync on Y)
Connector	DVI-I

Table 8-2 RGB Analog Input Specifications

Table 8-3 DVI Input Specifications

Parameter	Specification
Number/type	8 DVI single-link 1.0
Resolution	640x480 to 1900x1200 and 2048x1152m 720pm 1080i, 1080p
Interlaced Input	Up to 1920x1080i on inputs 1, 2, 5, and 6 only.
Cable equalization	Automatic or manual; up to 164 feet or 50 meters
Color depth	24-bit
Connector	DVI-I
HDCP	Compliant

Table 8-4 HDMI Digital Input Specifications

Parameter	Specification
Number/type	8 HDMI 1.3a
Display resolution	2k mode: 640x480 to 1900x1200 and 2048x1152m 720pm 1080i, 1080p
Interlaced Input	Up to 1920x1080i on inputs 1, 2, 5, and 6 only.
Color depth	24-bit
Cable equalization	Automatic or manual; up to 164 feet or 50 meters
Connector	HDMI
HDCP	Compliant



8.3 DVI Output Specifications

Table 8-5 Output Specifications

Parameter	Specification
Number	4
Resolution	640 x 480 to 2048 x 1152 pixels, 2560x1600 pixels dual-link
Sample rate	Up to 165 MHz
Pin Power	5 VDC, 500 mA per output
Connector type	DVI-I MicroCross integrated digital/analog connector (only digital is used)

8.4 Window Control Specifications

The table below lists window control specifications.

Table 8-6 Window Control Specifications

Parameter	Specification
Size	The size of each window can be scaled from thumbnail up to the full size of a 4K moinor or projector.
Position	Windows may be positioned to an accuracy of one pixel horizontally and one line vertically. A window can be moved to any region of the display space, portions that are positioned off the screen will be automatically clipped.
Priority	Each window is assigned a priority by the user. When windows overlap, the window with the higher priority assignment appears in front of windows having a lower priority.
Zoom	Zoom range is 100% (1:1) to 1000% (10:1).
Pan	Pan range is dependent on the input resolution.
Window Borders and Labels	Border widths and color may be set independently for each window. Label text and color may be applied for each window.
Other Functions	Video source select, freeze frame, brightness, contrast, hue, saturation, and sharpness.

TECHNICAL SPECIFICATIONS

8.5 Control Specifications

The table below lists SuperView 4K control specifications.

Table 8-7	Control	Specifications
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Parameter	Specification	
Control Protocol	SuperView 4K Control is accomplished by use of the SuperView 4K Web Control Panel (WCP) GUI or ASCII based command set. The WCP can only be used via Ethernet control while the ASCII command set may be used with any of the control ports listed below.	
Ethernet	 100/1000 BASE-T Ethernet port. Supports control of the full set of <i>SuperView 4K</i> commands over a network connection using a Telnet server/client architecture. Internal <i>SuperView 4K</i> web server provides graphical user interface when used with standard web browser. 	
RS-232 Port	 SuperView 4K commands can be sent through the RS-232 port to control the system. The RS-232 port transfers commands using the asynchronous serial protocol at 115200, 57600, 38400, 19200 or 9600 baud. The Default is 115200. The port is configured as DCE and can handle full duplex transfer. Support for hardware and software handshaking is provided. The RS-232 port connector type is a 9-pin sub miniature D connector. 	

8.6 Power and Physical Specifications

The table below lists the SuperView 4K power and physical specifications.

Table 8-8 Power and Physical Specifications

Parameter	Specification
Input Voltage	100-240 VAC auto-range
Frequency	50 - 60 Hz
Power Consumption	125 W maximum
AC Power Cord	IEC 60320-C13, 10A, 6FT
Size	3.5" (H) x 17" (W) x 20" (D) (8.9cm x 43.2cm x 50.8cm)
Weight	25 pounds (11.3kg)

9 CONTACT INFORMATION

RGB Spectrum can be reached via phone, fax, mail and e-mail as listed below:

- RGB Spectrum
 950 Marina Village Parkway
 Alameda, CA 94501
- Phone: (510) 814-7000
- Fax: (510) 814-7026
- Technical support: <u>support@rgb.com</u>
- Sales and product information: <u>sales@rgb.com</u>
- Website: www.rgb.com