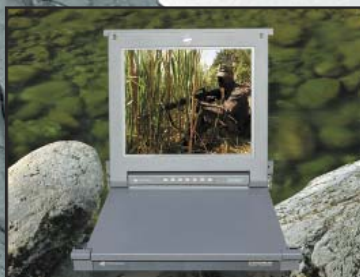# Command Console 19

User Manual

Z Microsystems

⚡ WARNING ⚠

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO, DO NOT USE THIS UNIT'S POLARIZED AS PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS UNLESS ALL THREE PRONGS CAN BE FULLY INSERTED

1. Use the power and video cables supplied with the product to help prevent interference with radio and television reception. The use of cables and adapters may cause interference with electronic equipment in the vicinity of this unit.

2. Changes or modifications not expressly approved by Z Microsystems could void user's warranty.

Command Console 19

⚡ CAUTION ⚠
RISK OF ELECTRIC SHOCK - DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK OF UNIT). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

⚡ This symbol warns the user that insulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.

⚠ This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore it should be read carefully in order to avoid any problems.

2

TABLE OF CONTENTS

SECTION   PAGE

ABOUT MANUAL

This Manual is also available on the Z Microsystems website (www.zmicro.com). We recommend you read this manual carefully and follow the instructions in the Installation chapter for verification of system functions and control settings.

SAFETY PRECAUTIONS

DANGER:

To avoid shock hazard:

- *Do not remove the covers around the Command Console*

- *Do not connect or disconnect the Command Console during an electrical storm.*

- *The power cord plug must be connected to a properly wired and grounded power outlet.*

- *Any equipment to which the Command Console will be attached must also be connected to properly wired and grounded power outlets.*

4

PRODUCT DESCRIPTION

The Command Console provides a liquid crystal display, a desk work surface and storage for any size keyboard and mouse in a 3.5" high (2U) standard 19" rack or transit case.

Specially designed locks on each side of the Command Console hold the compact folded unit securely in place during storage.

Release of the two Z-Locks on the front sides of the Console allow it to slide out and the LCD display to quickly swing up into a reading position.

By lifting up the desktop, the keyboard and mouse can be easily removed and set on top.

The lightweight and durable aluminum construction provides exceptional strength in field applications.

The high quality LCD screen provides full color and features up to 1280 x 1024 pixel resolution.

It can be easily adjusted to various vertical-viewing angles. The display works effectively with any workstation.

An electrostatically-applied and baked-on finish is used for extreme durability for shipboard, airborne, field deployments, and industrial or lab applications where weight and size are very critical.

With up to two Picture-in-Picture capability, a zoom feature and softmenus to allow for remote administration, the Command Console 19" is a 2U powerhouse.

5

SHIPMENT CONTENTS

Ensure all of the following parts are included in the package received from Z Microsystems. Verify all parts have not been damaged during shipment. If any of the parts are missing or damaged, immediately contact Z Microsystems Customer Service at 858-657-1000.

• Command Console unit attached to the mounting plate

• Hardware kit

• Manual

• Power Supply Cable

• Video Signal Cable

• Serial I/O Cable

• CD of SoftMenu software

Remember to save the unit's original shipping materials. It may be necessary to move the unit at a later date.

DANGER: To avoid shock hazard:

• *Do not remove the covers around the Command Console.*

• *Do not connect or disconnect the Command Console during an electrical storm.*

• *The power cord plug must be connected to a properly wired and grounded power outlet.*

• *Any equipment to which the Command Console will be attached must also be connected to properly wired and grounded power outlets.*

TOOLS REQUIRED

• Required Tools and Equipment

• Flathead screwdriver with about 10" shaft.

• Phillips screwdriver with about 10" shaft.

PRECAUTIONS

In preparation to install the Command Console, take the following precautionary step:

Turn off the electrical power to your computer.

NOTE: For the fastest and easiest installation of the Command Console, follow these steps in the sequence they are presented.

6

SLIDE REMOVAL

With the Console sitting on a workbench with the front facing towards you, press down to release the Z-Locks on each side of the front of the Console to slide the side rails back.

The slide rail will reach a stop about half way back.

This is a safety stop to prevent the Console from sliding out too far while mounted to the rack.

Simultaneously press in the safety catches on each slide rail and slide the side rails all the way off the back of the Console.

The slides should now be separated from the Console.

Each slide unit includes the slide rail, with the front Z-lock mount and the rear mount.

INSTALL THE SLIDES IN THE CABINET FRAME

On the front of the cabinet frame, use three Phillips screws on each side to secure the right and left Z-Lock mounts.

DO NOT tighten these screws to allow for adjustment of the Console within the cabinet frame.

On the rear of the cabinet frame, use three Phillips screws to loosely secure the right and left rear slide mount to the cabinet frame.

DO NOT tighten these screws fully at this time.

On the slide rails, using a slot screwdriver, loosen off the slide extension rail screw. Repeat on each side.
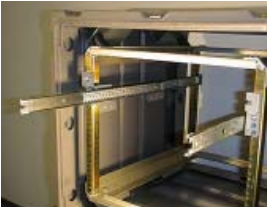
7

Go back on the rear of the cabinet frame, and fully tighten the three Phillips screws holding the slide extension rail to the cabinet frame.

Make sure you hold the slide mounts hard against the rack rail.

8

INSTALL THE COMMAND CONSOLE IN THE SLIDES

Pull the two Console slides out until they lock.

Hold the Console by each side, with the front toward you.

Feed the four cables coming out of the Console back through the cabinet frame.

Guide the Console into the slides and slide the Console in until it stops.

Simultaneously press in the catches on each slide and slide the Console all the way into the cabinet frame.

The Console should slide in and out easily.

TEST INSTALLATION AND MAKE ADJUSTMENTS

Slide the Console in and out several times.

The Console should easily close completely.

Because of variances in cabinet frames, there may need to be some adjustments of the Console slide system for best fit and movement of the Console in and out.

To be sure the slide and mount assembly are aligned properly, slide the Console in and out several times.

If the Console binds during sliding, do the following:

9

FINAL ADJUSTMENTS OF THE COMMAND CONSOLE

Loosen the screws on each of the front Z-Lock mounts.

Slide the Console partially out.

Use a flathead screw driver to slightly move the Z-Locks out away from the Console.

Tighten all the screws on the front Z-Lock mounts.

Slide the Console in and out to see if it moves smoothly.

Go back to the rear of the rack and fully tighten the slide extension rail screws.

NOTE: A wrench may be necessary to hold the nut on the other side.

10

SETTING UP THE MONITOR KEYBOARD AND MOUSE

With both hands, press both the Z-Locks down and

Slide the Console all the way out.

Using both hands, gently lift the Console screen by the top bar.

Open the storage tray top.

Remove the keyboard and mouse.

Align the Keyboard and Mouse cable to pass through the recessed access notch.

Close the storage tray top, then place the keyboard and mouse on top of the tray door.

The storage tray door now becomes a workstation for the keyboard and mouse.

There should be ample cable to both units for movement around the workstation.

11

CLOSING DOWN THE MONITOR

Remove the keyboard and mouse from top.

Open the storage tray top.

Place the keyboard and mouse inside the tray along with all cables and close door.

Using both hands, gently drop the Console screen by the top bar until it lays flat.

Slide the Console in with both hands.

Press both the Z-Locks down and slide in the console until you hear the positive click from the lock.

12

CABLE CONNECTIONS

Check that all cables are plugged in properly.

PIP INPUT (OPTIONAL)

AC POWER INPUT

PIP INPUT (OPTIONAL)

HOST SERIAL INPUT

VIDEO INPUT

REAR VIEW

J5   J4   J3   J2   J1
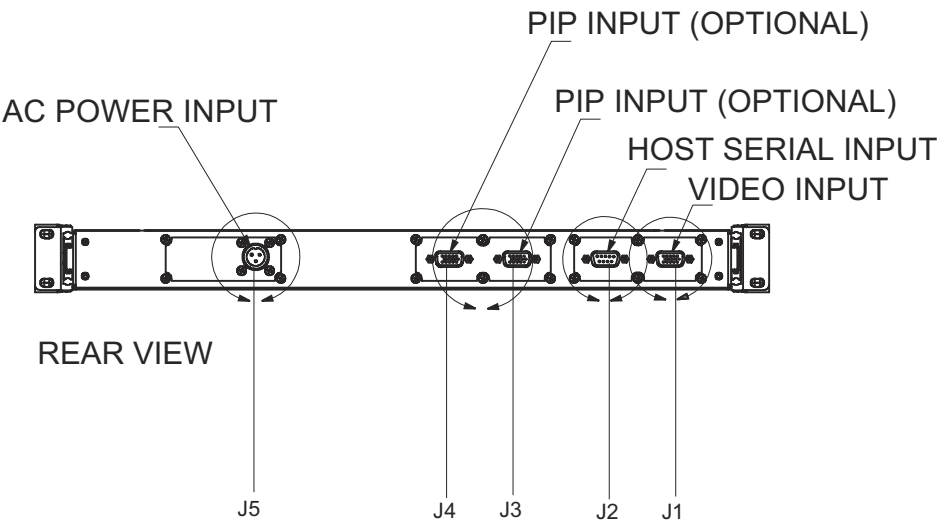
J1	Primary Video Input
J2	Host Input
J3	PIP Card #1 I/O Connector
J4	PIP Card #2 I/O Connector
J5	AC Power Line

POWERING UP

Turn on the monitor and then the computer.

13

DISPLAY PANEL CONTROLS

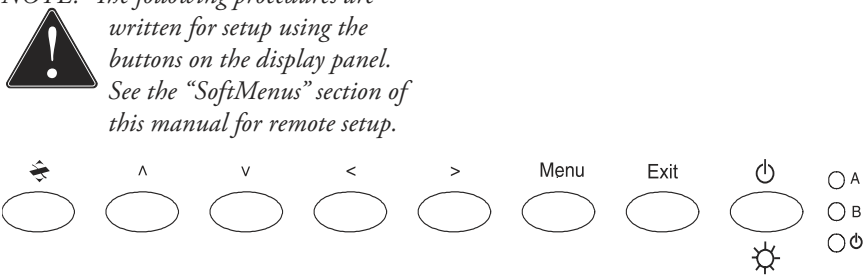The Command Console features push-button controls on the lower front of the front bezel. To setup the display, use the following controls to fine tune the image on the screen:

NOTE: *The following procedures are written for setup using the buttons on the display panel. See the "SoftMenus" section of this manual for remote setup.*

Button functionality description table:

Main Display	Auto Adjust "Z"	^	v	<	>	Menu	Exit	⏻
Key Func-tions	Auto Position	Move up through menu func-tions	Move down through menu func-tions	Move left to adjust value of function	Move right to adjust value of function	Acti-vates menu and menu func-tions	Exit from main menu or return from sub-menu to main menu	Hold down to turn backlight on and off; press briefly and repeat-edly to increase or decrease backlight brightness

Channels

A — Green — VIDEO A is selected (primarly, standard)

B — Green — VIDEO B is selected (Optional channel available-- but not standard)

If A & B are both green, it indicates the Channel Auto Switching function is selected.

⏻ — green — power and signal

orange — power and no signal

off — Standby mode

14

DISPLAY PANEL SETUP

NOTE: *If the touch screen option has been purchased for the Command Console, the touch screen manufacturer's software must first be installed on the computer being used with the Command Console. Follow manufacturer's instructions and user manual for software installation and use.*

This following section explains how to use the control buttons to adjust, image clarity and image position on the screen. In particular it discusses:

- The function of each of the push-button controls
- How to reset previously saved settings or return to factory settings
- Tips and techniques

NOTE: *The control buttons allow the user to control backlight operations; to store settings, and to revert to factory-saved settings.*

15

ONSCREEN MENUS

NOTE: When the unit is initially connected, no pip screens are enabled, and therefore can not appear. See section titled "pip configuration" for how to enable pip screens.

To access the onscreen display main menu, press the menu button on the front of the panel. All 2UCCs functions are controlled using the Main Menu's subtopics.

MAIN MENU

Picture Adjust   Configuration

Graphics Mode   PGB PIP

Color Balance   VIDEO PIP

Information
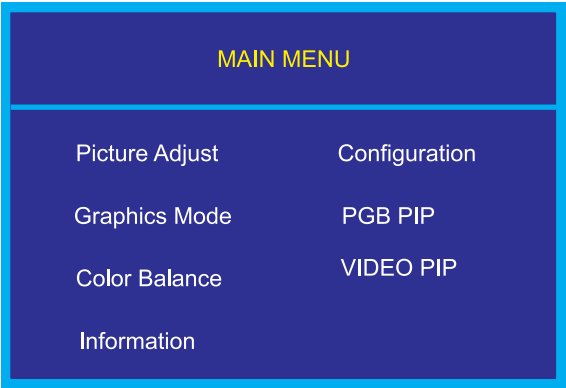
These submenus can be accessed using the Up and Down buttons on the display panel. See sections below for specifics regarding the submenus.

Main Screen Picture Adjust

Use the Up and Down buttons to highlight the "Picture Adjust" option. Press the "Menu" button to access the submenu.

PICTURE ADJUST

Brightness
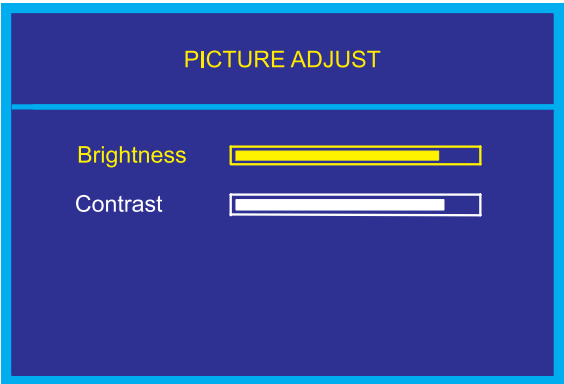
Contrast

Use the Left and Right buttons to increase and decrease the Brightness and Contrast characteristics of the screen. Press "Exit" to return to the Main Menu. The new adjustments will be applied automatically.
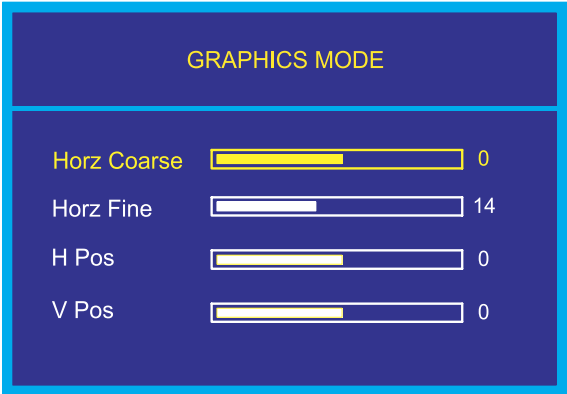
NOTE: Brightness of the main screen can also be adjusted without entering the Main Menu using the up and down display buttons.

16

Main Screen Graphics Mode

Use the Up and Down buttons to highlight the "Graphics Mode" option. Press the "Menu" button to access the "Graphics Mode" submenu.

GRAPHICS MODE

Horz Coarse		0
Horz Fine		14
H Pos		0
V Pos		0

"Graphics Mode" is used to adjust the positioning of the image. Use the Left and Right buttons to adjust the following modes: Horz Coarse, Horz Fine, H Pos, and V Pos.

The "Horz Coarse" option adjusts the horizontal width of the image.

The "Horz Fine" option adjusts the phase of the video sampling clock.

Press "Exit" to return to the Main Menu. The new adjustments will be applied automatically.

Main Screen Color Balance

Use the Up and Down buttons to highlight the "Color Balance" option. Press the "Menu" button to access the "Color Balance" submenu.

COLOR BALANCE

|		
Red		50
Green		50
Blue		50
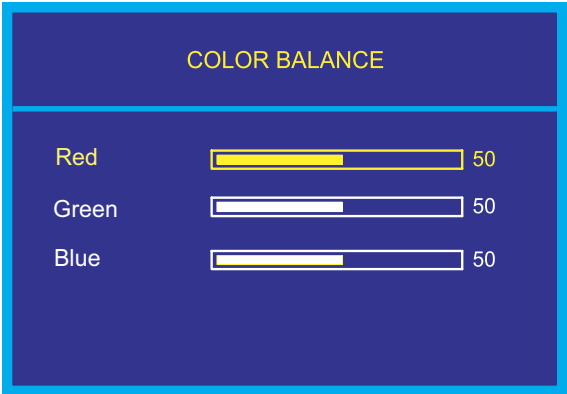
Use the Left and Right buttons to adjust the colors of the screen image.

Press "Exit" to return to the Main Menu. The new adjustments will be applied automatically.

17

Main Screen Information

Use the Up and Down buttons to highlight the "Information" option. Press the "Menu" button to access the "Information" submenu.

INFORMATION

Video Mode   1280x1024x60 Sep

ZUVC V.55 02/17/2003 Z Microsystems
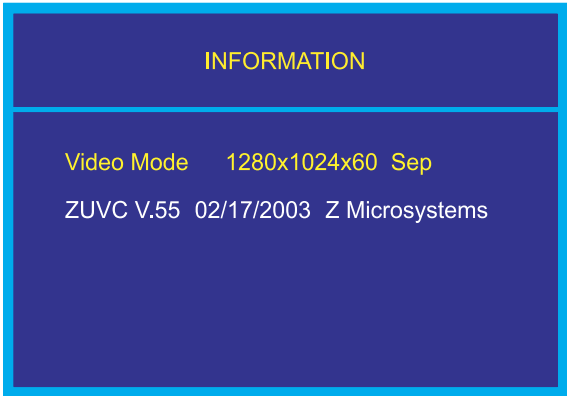
Within this submenu, view the video mode resolution, the refresh rate, and the sync mode. Press "Exit" to return to the Main Menu.

Main Screen Configuration

CONFIGURATION

Menu Timeout   50

Reset Default Settings

Channel Select   Auto

KVM Control ON
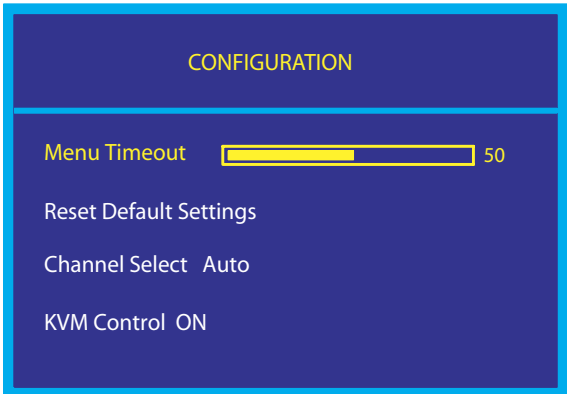
Menu Timeout:

The menu timeout is the amount of time the menu will appear while not in use before it times out. When the menu times out, it disappears from the main screen. Select with Up and Down keys and adjust with the Left and Right keys.

Reset Default Settings:

Resets all Main Menu settings to the factory default settings. Select and press the Menu button.

Channel Select Auto:

The Channel LEDs on the front panel display buttons reveal the active channels, as well. See the section regarding "Controls" for more details on the channel LEDs.

The Command Console has two channel options. Highlight "Channel Select" and use the Left and Right keys to change channels. If both channels have been configured for use, the following options are relevant:

AUTO: Automatically selects the available channel.

CHANNEL A: Allows the operator to choose Channel A as active.

CHANNEL B: Allows the operator to choose Channel B as active (channel B is optional--not standard).

18

KVM Control (see KVM on screen on previous page):

Toggles ON/OFF to apply or remove preset KVM command features. The preset commands are programmed as alternate functions of the firmware buttons on the front of the panel. For predefining the KVM character strains, please refer to SoftMenu instructions regarding KVM Control.

NOTE: When the KVM Control is turned ON, the Main Menu requires the button be held down for extended length of time to be made active.

RGB/Video PIP Control Screens

RGB PIP CONTROL

PIP Select 1   Configuration

Geometry

Color Balance

Image Quality
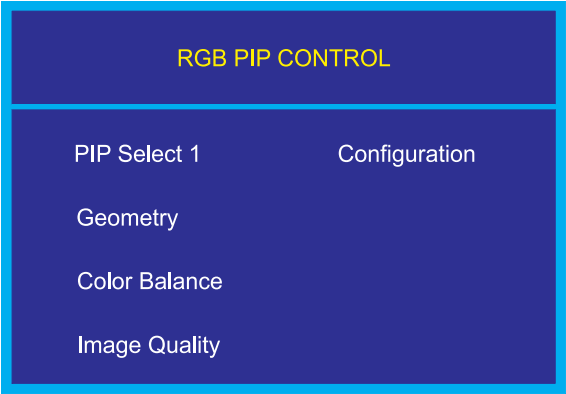
The unit will detect as many PIPs as are available. If no PIPs are installed on the system, the sub-menu will not be displayed.

VIDEO PIP CONTROL

PIP Select 2

Geometry

Video Settings
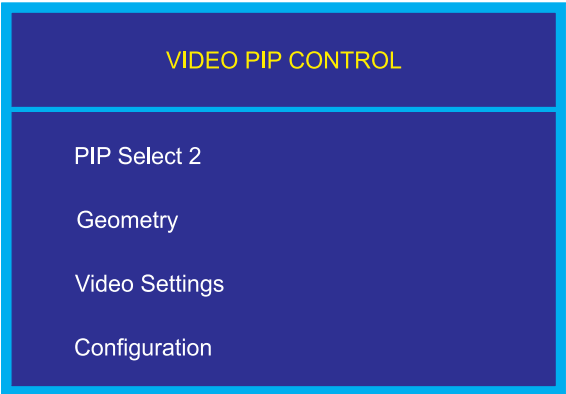
Configuration

Highlight "PIP Select 1". If more than one PIP is available, use the Left and Right buttons to highlight the desired PIP for configuration. The RGB and Video PIP menus offer similar adjustment options. The following sections describe the various RGB and Video menu options.

NOTE: Before adjusting the Geometry, Color Balance, or Image Quality of a PIP screen, the desired PIP needs to be enabled. See the section titled, "To Enable PIPs" for the proper initialization procedure.
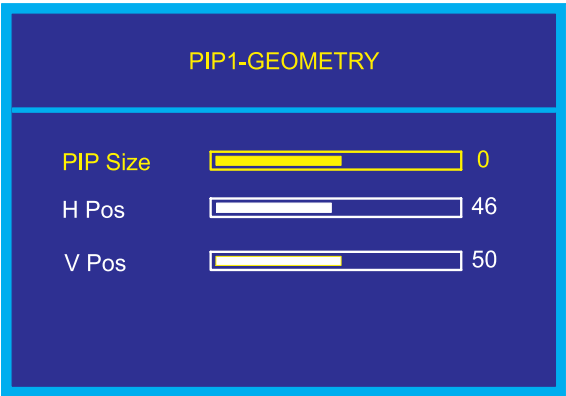
19

FROM THE RGB PIP MENU

Once the desired RGB PIP is highlighted, press the "Menu" button on the display to access the RGB PIP submenu. Within the submenu, the following options are accessible:
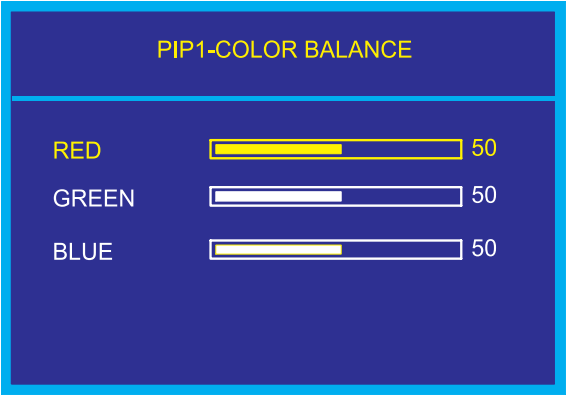
RGB PIP Geometry

Use the Up and Down buttons to highlight the "Geometry" option. Press the "Menu" button to access the "Geometry" submenu.

Within this submenu, highlight the item to alter, and use the Left and Right buttons to adjust the PIP size, the Horizontal Positioning and the Vertical Positioning. Press "Exit" to return to the RGB PIP submenu. The new adjustments will be applied automatically.

RGB PIP Color Balance

Use the Up and Down buttons to highlight the "Color Balance" option. Press the "Menu" button to access the "Color Balance" submenu.

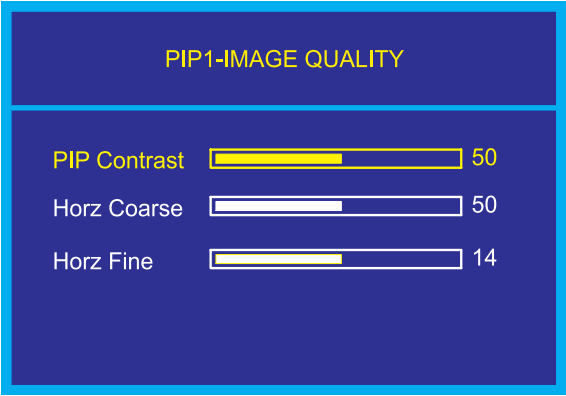

Within this submenu, highlight the color to adjust, and use the Left and Right buttons to alter the Red, Green and Blue color characteristics.

Press "Exit" to return to the RGB PIP submenu. The new adjustments will be applied automatically.

20

RGB PIP Image Quality

Use the Up and Down buttons to highlight the "Image Quality" option. Press the "Menu" button to access the "Image Quality" submenu.

PIP1-IMAGE QUALITY

PIP Contrast   50

Horz Coarse   50

Horz Fine   14

Within this submenu, high-light the item to adjust, and use the Left and Right but-tons to alter the PIP Con-trast, the Horz Coarse and the Horz Fine characteris-tics. Press "Exit" to return to the RGB PIP submenu. The new adjustments will be applied automatically.

RGB PIP Configuration

PIP ENABLE: From the Main Menu, use the Up and Down buttons to locate the desired PIP. Once highlighted, press the Menu button again to access the PIP submenu. Use the Up and Down buttons to highlight the "Configuration" option. Press the Menu button to enable the "PIP Configuration" submenu.

PIP1-CONFIGURATION

PIP Enable   OFF   Auto Adjustment

Reset Default Settings

Channel Select   Auto

C.Key   OFF
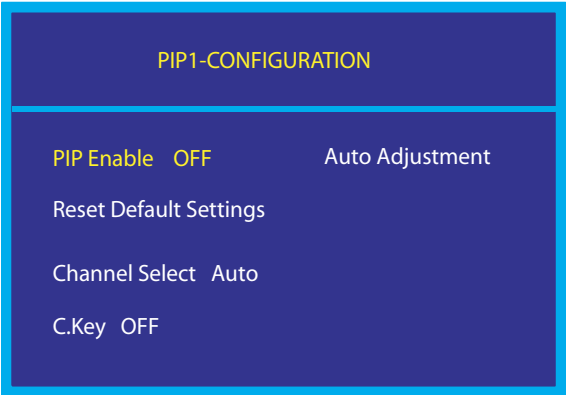
Highlight the "PIP Enable" option and press the Left or Right buttons to choose the "ON" option. The PIP screen will appear. Exit the "PIP Configuration" submenu by pressing the "Exit" button.

RESET DEFAULT SET-TINGS: Resets PIP values to factory default values.

CHANNEL SELECT: Determines the active RGB PIP channel (A, B and Auto). If only one channel is available, channel B will present no image.

AUTO ADJUSTMENT: Automatically adjusts the RGB PIP image to fit the screen. Undo the adjustment by choosing the Reset Default Settings option.

CHROMA KEY: Toggles PIP chroma key function OFF or to DEFAULT Settings.

21

FROM THE VIDEO PIP MENU

Once the desired Video PIP is highlighted, press the "Menu" button on the display to access the Video PIP submenu. Within the submenu, the following options are accessible:

Video PIP Geometry

Use the Up and Down buttons to highlight the "Geometry" option. Press the "Menu" button to access the "Geometry" submenu.
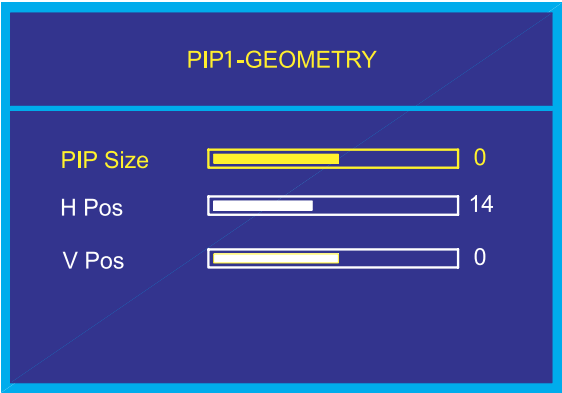
Within this submenu, highlight the item to alter, and use the Left and Right buttons to adjust the PIP size, the Horizontal Positioning and the Vertical Positioning. Press "Exit" to return to the Video PIP submenu. The new adjustments will be applied automatically.

Video PIP Video Settings

Use the Up and Down buttons to highlight the "Video Settings" option. Press the "Menu" button to access the "Video Settings" submenu.
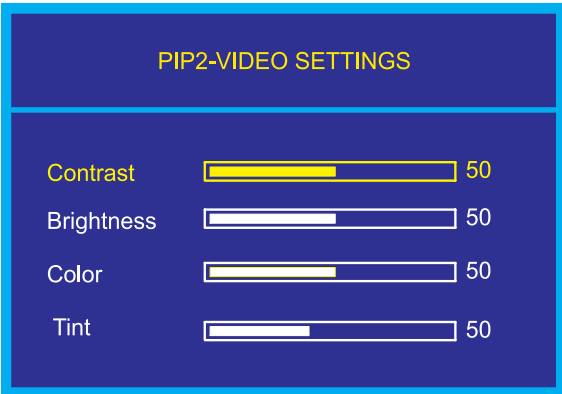
Within this submenu, highlight the item to alter, and use the Left and Right buttons to adjust the Contrast, Brightness, Color and Tint characteristics.

Press "Exit" to return to the Video PIP submenu. The new adjustments will be applied automatically.

22

Video PIP Configuration

PIP ENABLE: From the Main Menu, use the Up and Down buttons to locate the desired Video PIP. Once highlighted, press the Menu button again to access the PIP submenu. Use the Up and Down buttons to highlight the "Configuration" option. Press the Menu button to enable the "PIP Configuration" submenu.

PIP2-CONFIGURATION

PIP Enable   OFF

Reset Default Settings

C.Key   OFF
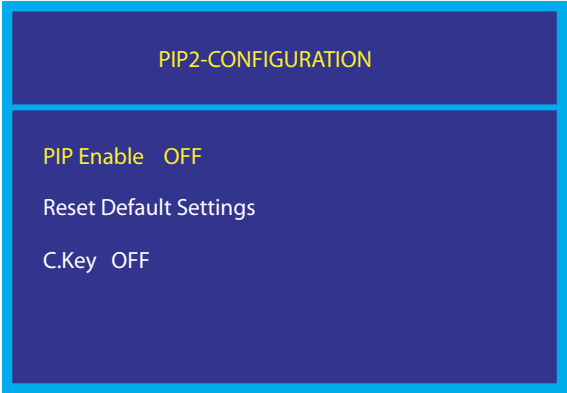
Highlight the "PIP Enable" option and press the Left or Right buttons to choose the "ON" option. The PIP screen will appear. Exit the "PIP Configuration" submenu by pressing the "Exit" button.

RESET DEFAULT SETTINGS: Resets PIP values to factory default values.

CHROMA KEY: Toggles PIP chroma key function OFF or to DEFAULT Settings.

23

SOFTMENUS™

SoftMenus™ are control panel dialog screens accessed from the host computer, allowing flexibility where positioning and environmental demands are a concern.

In order to access the SoftMenu™ features, the host serial port must be accessed at the rear of the Command Console. The Command Console must be connected to the computer and software must be installed.

The following initializing screen will appear as the SoftMenu™ software is launched:
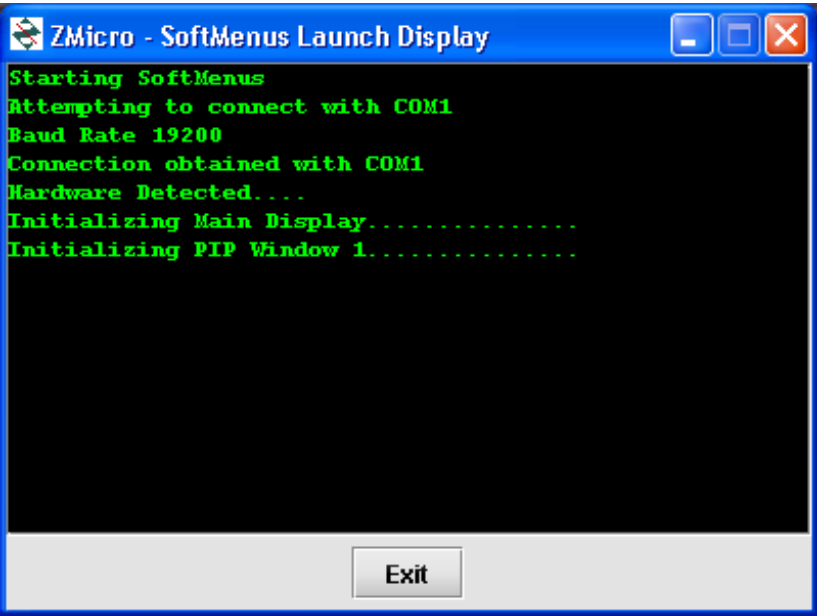
Clicking on the "Exit" button will cancel the SoftMenu™ program from opening.

24

Monitor SoftMenus™

The Monitor SoftMenu™ dialog screen allows the operator to adjust Channel Configuration activity, Default settings, Auto Adjust, Brightness and Contrast characteristics, Coarse and Positioning range, and Color Balancing of the main screen image in one easy-to-use menu.
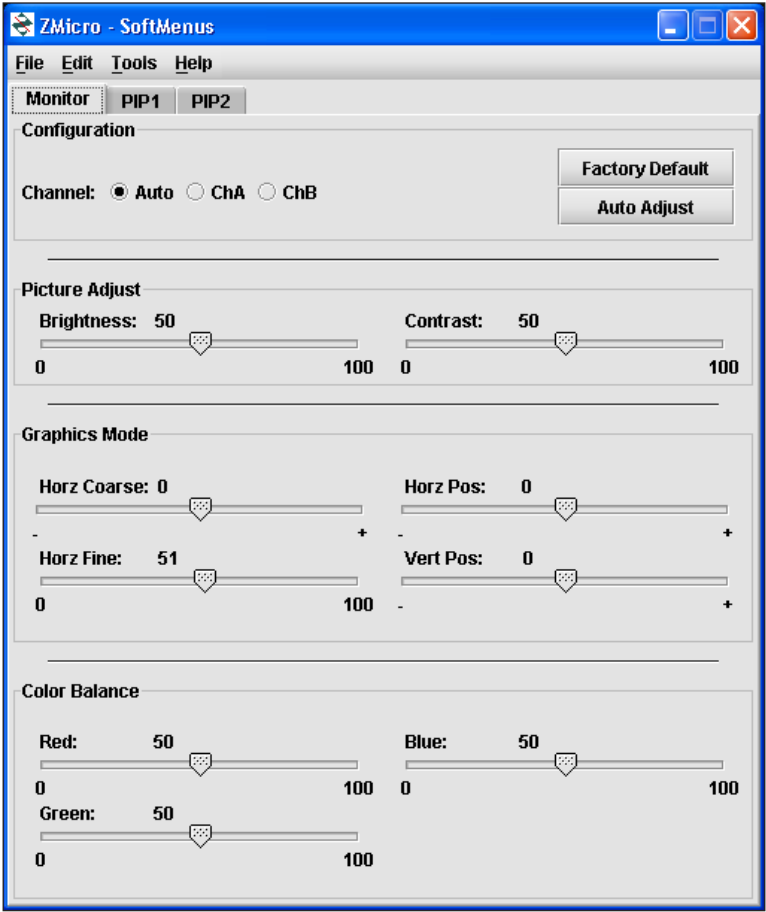
Monitor Screen "Factory Default" and "Auto Adjust" Buttons

To adjust the monitor screen settings, the "Monitor" tab must be active.

By clicking on the "Factory Default" button, all settings will automatically reset to the prescribed factory default values. The "Auto Adjust" feature automatically adjusts the RGB image to fit the screen.

25

PIP SoftMenus™

The PIP SoftMenu™ tabs allow the operator to choose RGB and NTSC PIP Color Balancing and Image Quality or Video Settings configurations, as well as Factory Default set-

tings and Chroma keying. The settings for the RGB and NTSC PIPs will be different.

PIP "Factory Default" Button
Before any changes can be made, choose the desired PIP tab (PIP1 or PIP2).

Once the correct PIP tab screen is activated, settings can be altered.

By clicking on the Default button, all settings will automatically reset to the prescribed factory default values.
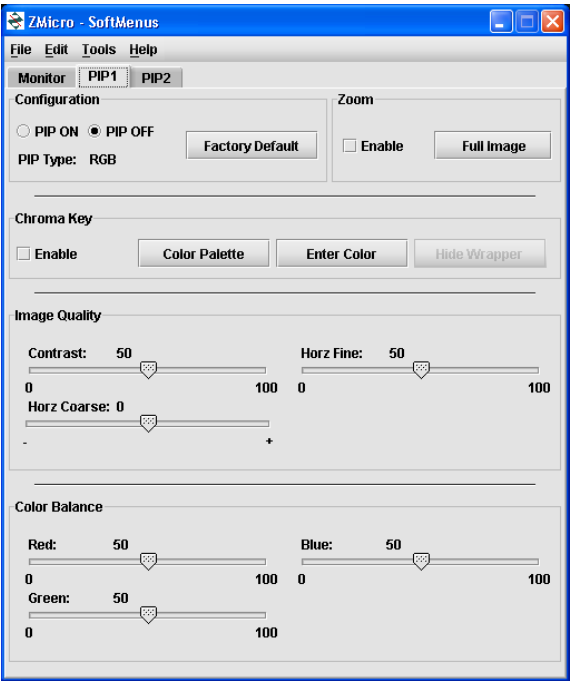
"Zoom"

To use the Zoom, the chroma key feature must be enabled. Click the "Enable" box under "Chroma Key" to use the Zoom feature. For more on the "Zoom" feature see page 31.

"Chroma key"

The chroma keying function will alter the PIP color attributes so that the main screen can be viewed from beneath the PIP screen when the PIP GUI wrapper is hidden. In addition, a PIP screen can be viewed from beneath other PIP screens by distilling certain color pixels to represent pertinent PIP content. The chroma keying functions are only adjustable from the SoftMenu screens.

26
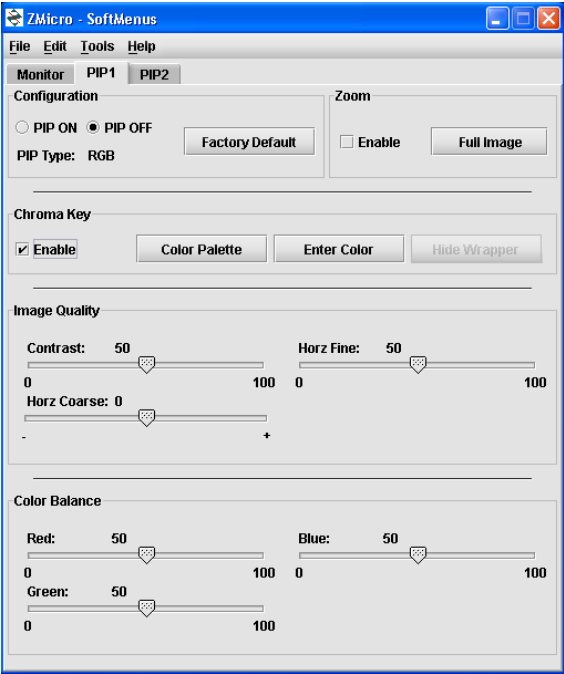
"Enable" and "Hide/Show Wrapper"
Click the "Enable" box to enable the chroma keying function. The "Hide/Show Wrapper" toggle key, when enabled, allows the operator to wrap the GUI PIP wrapper around the PIP image or hide it.

"Color Palette" and "Enter Color"
The PIP chroma keying Color Palettes and manual color values can be accessed with the "Color Palette" and "Enter Color" buttons. See below for details regarding manual and default color operation.

The "Enter Color" button allows the operator to directly adjust the red, green and blue values with the following table:
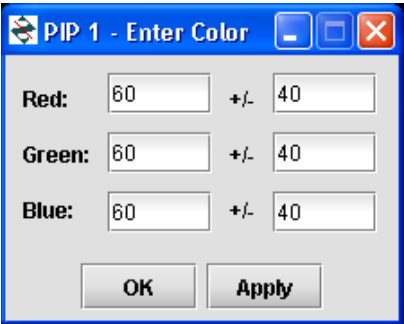
Any combination of values for the three base colors can be entered in the fields to the left. Each color value can be set between 0 and 255 on the RGB color range. For example, if all three colors are set to "0" the result will be black. This value acts as a center point to the values entered in the offset field. The offset value to the right is the amount the software will offset the centerpoint color values from one another to create color differentiation.

There can be only one color per PIP with the chroma key function. The PIP chroma keying color can also be chosen within PIP color palettes (shown below). There are three types of palettes available: 8 colors, 27 colors, and 64 colors. The fewer the colors in the palette, the greater the offset will be between PIP colors.

27

To choose from a larger palette, left click on the "Number of Colors" drop-down menu and move the cursor down to the desired number of colors in the palette. The corresponding palette will appear. Simply choose a color by clicking on it.

28
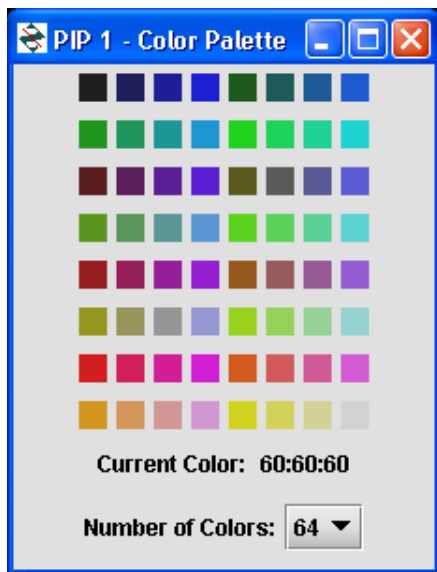
Video Resync Option

If the Video Resync option has been chosen for the unit, please note the following capability. If the NTSC PIP image fails and does not recover, the "Video Resync" button will enable the PIP board to reanalyze the video input stream in an attempt to recover the image.

29
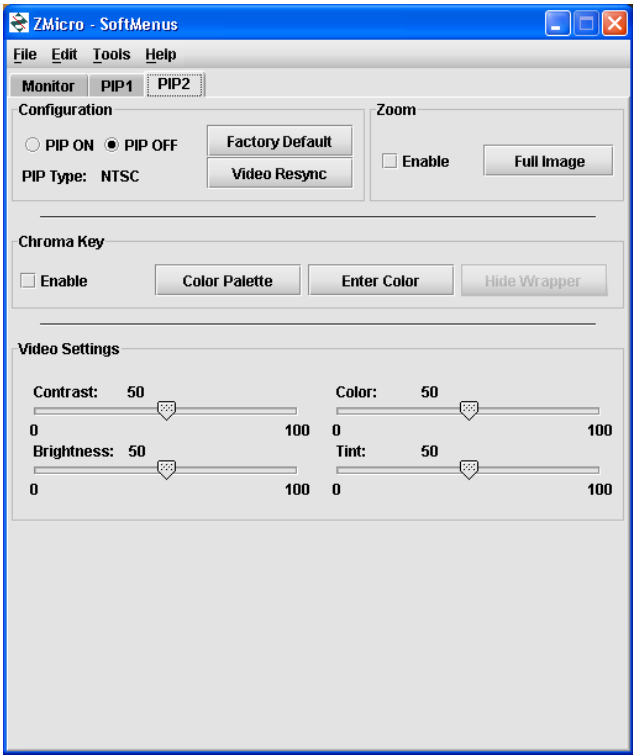
Menu Bar

The SoftMenus' menu bar also includes the "Edit" and "Tools" drop-down menus. Left click on any of the following drop-down menus:

File

Load previously saved display settings and save settings in the "File" drop-down menu. Multiple users may wish to alter the settings individually with this feature.

Edit

Manage, add, and remove the ports used by SoftMenus for communication with the "Edit" drop-down menu.

Doc# 27-0023UM Rev 1.0 Issued 09/04
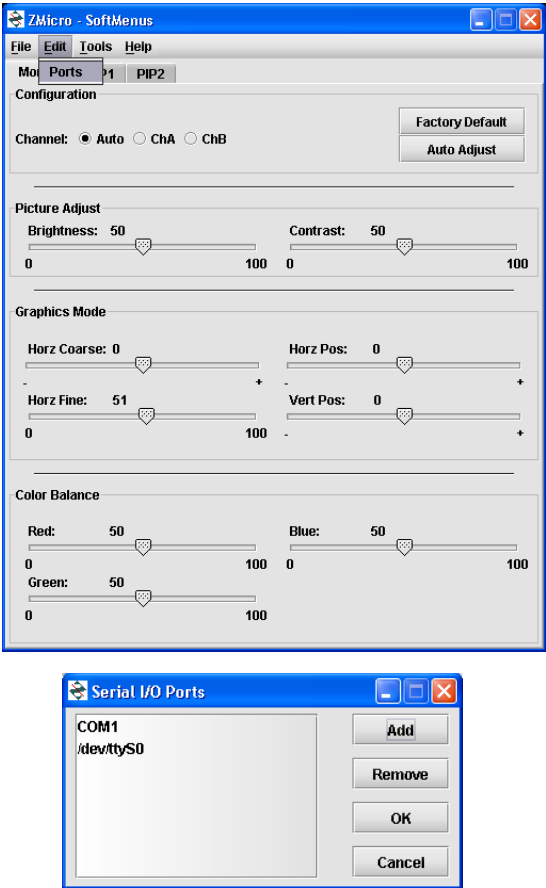
Tools

Manage the Chroma key and Zoom status of the various PIPs; allows the user to maintain activity in one tab window while simultaneously altering the chroma key and zoom functionality of a different PIP.

Zoom

The Zoom feature allows the user to focus on a certain area of the screen. There are two ways to enable Zoom:

1. Tools drop-down menu>PIP#>Zoom>Enable, as shown here:
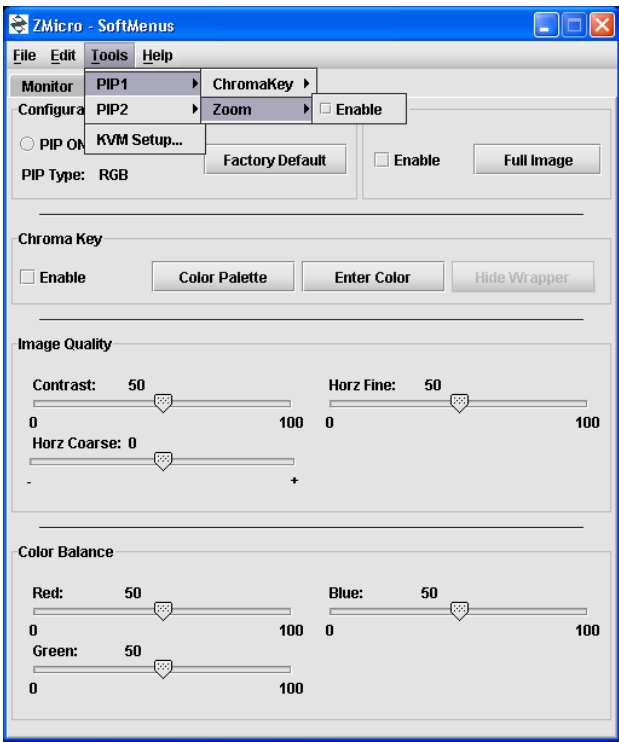
2. Independent PIP Configuration Panels on the PIP tabs.

To restore the PIP image to its original scale, either double click on the zoomed image, or press the "Full Image" button on the PIP tab screen (see image above).

Help

Utilize the software "Help" settings to read about the version of the unit, as well as information about Z Microsystems.

31

NOTE: *While Zoom is enabled in SoftMenus, the Chromakey function must remain enabled.*

HOT KEYS

Hot Keys are only available on the Linux and Windows versions of Z Microsystems' software. The following combinations of "hot" keys have been customized for ease of use of the Command Console.

Ctrl + Tab

Press the "Control" and the "Tab" keys simultaneously to toggle between the Main Monitor and PIP tabs, from left to right.

Ctrl + PIP # 1, 2, 3, etc.

Press "Control" and the desired PIP number simultaneously to turn on a particular PIP. Press the two keys again to turn the PIP off.

Ctrl + B

Press the "Control" and the "B" keys simultaneously to turn up the main image's brightness in small increments.

KVM Control (optional)

The SoftMenus KVM Control feature enables the display to communicate with the KVM over the serial port. The ASCII string assignments can only be configured through Soft-Menus.

To assign or alter the ASCII strings, click on the SoftMenus' Tools drop-down menu.
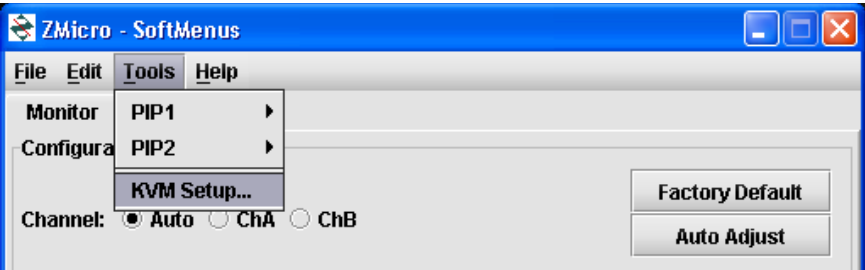
Left click on the "KVM Setup" option and the following screen will appear:
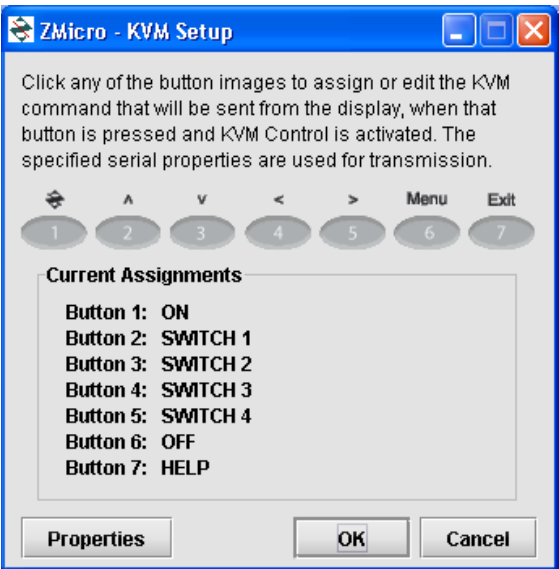
The button images map to the physical buttons on the display panel.

Click on the buttons cor-responding to the desired string to gain access to the assignment screens.

Click on the "Properties" button to specify the serial port configuration the dis-play should use to commu-nicate with the KVM.

Click the "OK" button to save the settings and exit from the KVM Setup screen. Click the "Cancel" button to exit from the KVM Setup screen without saving the changes.

NOTE: The exact ASCII strings and serial port properties are defined by the KVM manufacturer. See the KVM manufacturer's documentation to assign the ASCII string.

33

MAINTAINING THE COMMAND CONSOLE

WARNING: Be sure to turn off the power before you perform any maintenance on the monitor.

WARNING: To avoid risk of electric shock, do not disassemble the monitor cabinet. Users cannot service the monitor. User maintenance is restricted to cleaning as explained below.

CLEANING THE MONITOR

Unplug the monitor from the power outlet before cleaning.

• To clean the flat panel display screen, lightly dampen a soft, clean cloth with water or mild detergent. If possible, use a special screen cleaning tissue or solution suitable for the display.

• Isopropyl alcohol may also be used to clean fingerprints or smudges on the face of the monitor. First apply the alcohol to the soft lint-free cloth before wiping the monitor. Do not apply the alcohol directly on the monitor.

34

TROUBLESHOOTING THE COMMAND CONSOLE

No Main Display Image

If there is no image on the main screen, a signal will appear on the screen that states, "No Input, Check Cable". If the cable from the computer to the display is secure, determine the color of the standby LED and follow the appropriate procedure below.

NOTE: *These procedures only apply to the main screen image, not the picture-in-picture screens. See next section for PIP screen troubleshooting guide.*

Black

Problem:
If the standby LED is black, there is no power to the unit.

Recovery:

- Ensure the power cable is plugged into the source.
- Connect the power cable to a AC outlet. Ensure the AC outlet is active.
- Wake up the display by pressing the standby button.

Orange

Problem:
If the standby LED is orange, there is no video signal.

Recovery:

- If Video A or Video B is selected, ensure there is a video signal coming into the selected channel.
- Ensure there is a video signal coming from the computer.

Green

Problem:
When the standby LED is green, there is both power and a video signal. If there is no image on the main display, there is a possible hardware failure.

Recovery:

- Ensure the video signal coming from the computer is not a black screen.
- Contact Z Microsystems' Customer Support Department.

35

No Picture-in-Picture Option Appears on Main Menu

If no PIP menu is available from the Main Menu (where PIP is installed), the PIP has not been detected by the controller. Recycle power to the unit by disconnecting power and then reconnecting power. If no PIP is detected again when the Main Menu is powered up again, call Z Microsystems' Customer Support Department for assistance.

No Picture-in-Picture Display Image

There are a few scenarios which may cause the image on the optional PIP to be black. To eliminate these concerns, follow the instructions below in the order they are presented:

1. Ensure the PIP is viewing something with contrast and shape and can be easily detected under normal viewing conditions.

2. If the PIP is viewing something with these qualities, and should be easily detected, the values associated with Contrast and Color Balance may require adjustment. To ensure the Contrast and Color Balance values are not the cause of the black screen, set the values to the factory default settings.

3. In some Command Console configurations, there are two inputs for the RGB channel and one input for the Video channel. Ensure the correct channel is chosen for the desired PIP.

4. If the black screen is for the RGB PIP, perform an Auto Adjust in the PIP submenu.

5. If no PIP image appears, call Z Microsystems' Customer Support Department for assistance.

36

Display Image Has Vertical Bars

If the main image begins to display vertical bars, adjust the "Horz Coarse". From the Main Menu, use the Up and Down buttons to highlight the "Graphics Mode" option. Press the "Menu" button to access the "Graphics Mode" submenu. Use the Left and Right buttons to adjust the screen until the number of bars is reduced. Continue adjusting one step at a time until the bars are no longer visible.

Display Image Appears Fuzzy

If the main image begins to appear fuzzy or "noisy", adjust the "Horz Fine" until it is reduced. The "Horz Fine" option adjusts the phase of the video sampling clock. To access the "Horz Fine" submenu from the Main Menu, use the Up and Down buttons to highlight the "Graphics Mode" option. Press the "Menu" button to access the "Graphics Mode" submenu.

37

REPLACING PARTS

If the Z Microsystems Technical Support Engineer determines that the product needs to be replaced, a Customer Service Representative will issue a Return Material Authorization (RMA) number.

An RMA number is required to return a product to Z Microsystems, regardless of the reason for the return.

The Z Microsystems Customer Service Department/RMA Request Form will ask the customer to provide the following information:

- model number of the defective product
- serial number of the defective product
- problem with the defective product
- return "ship to" address
- the name and address of the company department to which we will send the invoice (if product is out of warranty or is different from the "ship to" address.
- phone number and e-mail address of contact
- purchase order number

You will be given an RMA number and will be asked to send the product to:

Z Microsystems
ATTN.: (RMA#) It is very important to reference the RMA#
5945 Pacific Center Dr., Suite 505
San Diego, CA 92121

38

SPECIFICATIONS FOR COMMAND CONSOLE

The Command Console is designed to host a choice of LCDs from several manufacturers based upon customer requirements. The specifications unique to each particular LCD vary from manufacturer to manufacturer. These particular specifications are available through our sales department.

General Display Specifications

Display size	19 Inch
Resolution	Up to 1280 x 1024
Color Palette	16.7 Million
Contrast Ratio	700:1 (typ)
Pixel Pitch	.294 mm x .294 mm
Luminance	300 cd/m2 (typ)
Viewing Angle	80°/80°
Control	Control Panel or SoftMenu
Optical Response Time	15 ms (typ)

Options

Picture in Picture	Supports up to 2 PIP Cards

Power

Power Consumption	100 W
AC Power Supply	100-240 VAC input@50/60 Hz

Cables

Display Cable	10' cable, HD15
Power Cable	10' cable, IEC or 6' cable, 5015
Serial Cable	10' cable, DB9

Physical

Size	19.06" W x 3.50" H x 23.69" D
Total Weight	29 lbs

Environmental*

Operating Temp	0° to 50° C
Extended Operating Temp**	-20° to 50° C
Non-Op Temp	-40° to 70° C
Humidity	5%-95% Non-Condensing
Operating Altitude	1,300 to 10,000 ft
Non-Op Altitude	1,300 to 40,000 ft
Vibration	MIL-STD-167

	Shock	MIL-STD-810E (Method 516) 30 g's
		MIL-S-901D (in isolated rack)
	Fungus	Non-Nutrients/Contaminants
	Sand and Dust	5.5 MPH for 25 mins (display bezel only)
	Drip	MIL-STD-810E (display bezel only)
Reliability		
	MTBF	Display: 20,000 hrs w/ backlight change at 10,000 hrs.
	MRRT	<30 minutes
	Safety	UL 1950 (Used as a design guideline)
	EMI	FCC Class A
	Quality/Workmanship	IPC/ISO 9001:2000 and applicable section of MIL-HDBK-454

* Results of Environmental Tests pending

** Unit will power up and is legible at -20°C; backlight life is reduced

MECHANICAL OUTLINE FOR COMMAND CONSOLE

ISOMETRIC VIEW CLOSED

ISOMETRIC VIEW OPEN

ISOMETRIC VIEW
OPEN WITH
KEYBOARD COVER OPEN

41

16.92

23.69

24.00 TO 30.00 LONG RACK

1.72

PIP INPUT (OPTIONAL)

PIP INPUT (OPTIONAL)

HOST SERIAL INPUT

VIDEO INPUT

.63 1.25

1.25

KEYBOARD/MOUSE CABLE ACCESS

18.20

AC POWER INPUT

REAR VIEW

.11R

.17

3.50

19.06

FRONT VIEW

42

18.41

8.19

23.73

15.54

1.97

A

A

1.25

.63

.25

KEYBOARD AREA

1.80

18.12

.17

.10R

SECTION A-A

43

WARRANTIES

Standard Warranty

-no charge-


```
SHIP DATE          90 DAYS                              365 DAYS
                              Standard Warranty
```
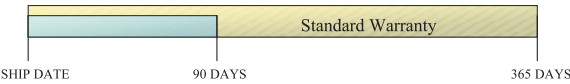
Z Microsystems' one-year Standard Warranty includes a 90-day AirSpare Service Plan. This means that if any standard Z Microsystems' product fails within the first 90 days after shipping, the customer will receive a new replacement.

All non-standard* products are covered for one year under Z Microsystems' Standard Warranty that includes free parts and labor. However, the 90-day AirSpare Plan can be purchased as an additional option for non-standard products.

1-90 days - Z AirSpare Service

- • 91-365 days - Free Parts and Labor
- • 9-5 EST telephone technical assistance
- • Online technical help
- • Email product updates

*a non-standard product is a prototype or a product specifically designed or engineered per a customer's specification

To return a defective product a customer can call the Z Microsystems Customer Service Department at 1-858-657-1000, ext. 232, or fill out the RMA Request Form on our website. Please see the section in this manual titled, "Replacements" for details on how to replace a part.

44

Z Extended Warranty

Z Microsystems' Extended Warranty Plan provides one and two year extended warranty options under which a Standard Warranty is extended from the end of the first year of the Standard Warranty period.

The One-Year Extended Warranty period will begin on the day the Standard Warranty expires and the Two-Year Extended Warranty begins when the One-Year Extended Warranty expires.

1-90 days - Z AirSpare Service

91-365 days - Free Parts and Labor

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates

2nd year - Free Parts and Labor

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates

3rd year - Free Parts and Labor

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates

45

Z Preferred Warranty

Z Microsystems provides a Preferred Service Plan under which Z Microsystems will repair or replace and return a defective product to the customer within one week of Z Microsystems' receipt of the defective product.
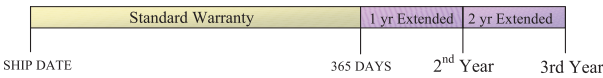
1-90 days - Z AirSpare Service

91-365 days - Free Parts and Labor

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates
- Guaranteed One Week Turnaround

2nd year - Free Parts and Labor

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates
- Guaranteed One Week Turnaround

3rd year - Free Parts and Labor

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates
- Guaranteed One Week Turnaround

46

Z Airspare Warranty

Z Microsystems provides an AirSpare Service Plan that will replace a defective product, within the first year of the warranty period, with a new product the following business day.* The AirSpare Service Plan does not cover special order items. A product may be deemed a special order item at the discretion of the Customer Service Department. Z Microsystems, at its discretion, may offer the AirSpare Service Plan to a customer who purchases a special order item at the one-year rate.

*Z Microsystems cannot guarantee next day delivery if contacted after 2:00 PM Pacific Time. Calls on Fridays or before holidays will receive a new product the following business day.

1st Year - 24 hour replacement

- 9-5 EST telephone technical assistance
- Online technical help
- Email product updates

2nd Year - 24 hour replacement

- 9-5 EST telephone technical assistance
- Online technical help
- email product updates

47

APPENDIX

Z On-Site Service

Z Microsystems also provides on site service and consultation to customers who require Z Microsystems' technical expertise.

Disclaimer

Z Microsystems warrants that every product is free from defects in materials, workman-ship and conforms to Z Microsystems' stringent specifications.

Z Microsystems calculates the expiration of the warranty period from the date the product is shipped. This means that the ship date on your invoice begins your warranty, unless Z Microsystems informs you otherwise. During the warranty period, Z Microsystems will provide warranty service under the type of warranty purchased for the product.

Replacement parts will assume the remaining warranty of the parts they replace. If a product does not function as warranted during the warranty period, Z Microsystems will repair or replace the part (with a product that is as a minimum functionally equivalent) without charge.

If the product is transferred to another user, the warranty service is available to that user for the remainder of the warranty period.

Z Microsystems' warranties are voided if the covered product is damaged due to an acci-dent or abuse. The warranty is voided even if the product is shipped in sufficient packag-ing.

Under no circumstances is Z Microsystems liable for any of the following:

> 1. Third-party claims against you for losses or damages,
>
> 2. Loss of, or damage to, your records or data, or
>
> 3. Economic consequential damages (including lost profits or savings) or incidental damages, even if Z Microsystems is informed of their possibility.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights that vary from jurisdiction to jurisdiction.

Warranty does not take effect until full payment is received by Z Microsystems.

CUSTOMER SUPPORT

NOTE: ⚠ *For image problems, run AUTO SETUP again before consulting this section. In most cases, AUTO SETUP can fix the problems. See the Auto Setup section for details.*

NOTE: ⚠ *If possible, stay by the computer. The Z Microsystems Technical Support Representative may wish to go through the problem over the telephone.*

If you are unable to correct the problem yourself, contact:

Z Microsystems at:

(858) 657-1000
Fax: (858) 657-1001
Website: www.zmicro.com

Before calling, please have available as much of the following information as possible:

NOTE: ⚠ *More help, late-breaking news and details of the latest accessories for these products may be found on the worldwide web at: http://www.zmicro.com*

1. Model and serial number from the label on the monitor.

2. Purchase P.O.

3. Description of problem

4. Computer type and model

5. System configuration (hardware fitted, etc.)

6. System BIOS version number

7. Operating System and version number

8. Display driver version number

9. Video Adapter Type

50

CUSTOMER FEEDBACK

We value feedback on our products, their performance, problems found, and welcome all constructive suggestions. Please send such productive information in writing to:

Customer Service
Z Microsystems
5945 Pacific Center Blvd., Suite 505
San Diego, CA 92121

or www.zmicro.com

COMMAND CONSOLE SERIAL CONTROL ICD

The following serial port property settings must be in place in order for the host to have communication with the display.

SPEED   19,200 BPS

DATA BITS   8

PARITY   None

STOP BITS   1

The serial control ICD commands are presented here for the user's knowledge. The commands are written and controlled by Z Microsystems and are not intended for the customer to use. Any improper use of the commands may place the panel in an unstable state and may degrade the image quality, thereby voiding the warranty by the user.

Command Structure

The command structure for the majority of the commands for the display follow the following structure:

> **Z<space>U<PIP#><space><command><space><argument>**

where...

> "PIP#" = the picture-in-picture (PIP) card on which the command should act. The main image is PIP number "0"

> "command" = the ascii string that represents the command

> "argument" = the optional argument to the command

> "space" = ascii character 0x32

The command structure must be succeeded by a carriage return (0x13).

The controller returns a string of tildes ('~') indicating that the command has been accepted and processed. Some of the commands return other information which will be specified on a per command basis.

Unless otherwise specified the command strings examined in this document must be placed in the above structure when being sent to the controller.

The commands will be broken down by the image on which it operates, either the main, RGB, or NTSC image. There may be overlap between the different images and the commands that work on them.

Main Image—Standard Command Structure

The following commands operate on PIP number "0" otherwise known as the main image.

PAA

Description
PAA has the controller perform its auto adjust algorithm. This often helps the main image

properly position itself if an uncommon image stream is provided to the display.

Argument
No arguments.

PBB

Description
PBB adjusts the blue balance of the main images RGB setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PBG

Description
PBG adjusts the green balance of the main images RGB setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PBR

Description
PBR adjusts the red balance of the main images RGB setting. On certain displays, a low brightness setting can cause the backlight to fade to black before reaching "0".

Argument
The allowable range is 0-255 base10. The factory default is 128.

PCH

Description
PCH selects the channel that the controller should check for input. There are two chan-nels through which that input can be provided—channels A and B. The unit can also be placed in auto detect mode. The unit does not allow itself to be placed on a dead channel after it has acquired a signal. If the controller has a good signal coming in on channel A and the controller is told to listen to channel B and channel B has no signal the controller will switch back to channel A.

Argument
For Auto mode 66, channel A 88, channel B 99 all base10. Default is Auto mode.

Return
The channel being listened to is returned in the following syntax:

=<mode>~~~

where "mode" = {66,88,99}

PDS

Description
PDS has the display place all of the settings back to the factory defaults.

Argument
No arguments.

PHC

Description
PHC adjusts the horizontal coarse setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PHF

Description
PHF adjusts the horizontal fine setting.

Argument
The allowable range is 0-248 base10. The factory default is 119.

PHP

Description
PHP adjusts the horizontal position of the image.

Argument
The allowable range is 76-180 base10. The factory default is 128.

PIC

Description
PIC adjusts the images constrast.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PUA

Description
If the display has been asked to auto adjust with the **PAA** command the PUA restores the display's image prior to the auto adjustment.

Argument
No arguments.

PVP

Description
PVP adjusts the vertical position of the image.

Argument
The allowable range is 106-150 base10. The factory default is 128.

Non-Standard Command Structure

The following commands do NOT use the standard command structure. They are sent "as is" to the controller, succeeded by a carriage return (CR).

EPROM SAVE

Description
EPROM SAVE instructs the controller to store the display settings. The stored settings will be used by the display when power is cycled until new settings are stored. This command must be issued if any changes to the settings are made and the changes need to be maintained between power cycles.

Argument
No arguments.

FRST NTSC

Description
FRST NTSC is used to query the controller for the number of the first NTSC PIP card in the display's configuration. If there isn't an NTSC PIP present in the configuration then "0" is returned. NTSC PIPs follow RGB PIPs so if there are any RGB PIPs present in the display's configuration then the first NTSC number is equal to the last RGB number plus one.

Argument
No arguments.

Return
The number of the first NTSC PIP card. The syntax for the returned value is the following:

       =<value>~~~~

where "value" = the number of the first NTSC PIP.

FRST RGB

Description
FRST RGB is used to query the controller for the number of the first RGB PIP card in the display's configuration. If there is not an RGB PIP present in the configuration then "0" is returned. RGB PIPs are always numbered first in the current display implementation.

Argument

55

No arguments.

<u>Return</u>
The number of the first RGB PIP card. There are two valid values that this command can return "0" or "1". If there is an RGB PIP provided with the display this command is issued to then "1" will be returned otherwise "0" is returned indicating that there is not an RGB PIP present. The syntax for the returned value is the following:

=<value>~~~~

where "value" = the number of the first RGB PIP.

LAST NTSC

<u>Description</u>
LAST NTSC is used to query the controller for the number of the last NTSC PIP card in the display's configuration. If the **FRST NTSC** command returned "0", indicating that no NTSC PIPs are present, then this command will return "0".

<u>Argument</u>
No arguments.

<u>Return</u>
The number of the last NTSC PIP card. Valid return values for this command are 0 to the maximum number of PIPs the display's configuration can accept. The syntax for the returned value is the following:

=<value>~~~~

where "value" = the number of the last NTSC PIP.

LAST RGB

<u>Description</u>
LAST RGB is used to query the controller for the number of the last RGB PIP card in the display's configuration. If there is not an RGB PIP present in the configuration (the **FRST RGB** command returned "0") then "0" is returned.

<u>Argument</u>
No arguments.

<u>Return</u>
The number of the last RGB PIP card. Valid return values for this command are "0" to the maximum number of PIPs the display's configuration can accept. The syntax for the returned value is the following:

=<value>~~~~

where "value" = the number of the last RGB PIP.

The range of values returned by the FRST, LAST commands represent the values that are to be used to indicate the PIP number in the command structure. If for example the FRST RGB command returns a "1" and the **LAST RGB** command returns a "3" then there are 3 RGB PIPs on which commands can act. Therefore there are four valid values that can be

56

provide for PIP# in the command structure namely "0", "1", "2", and "3", where "0" acts on the main image and "1", "2", and "3" act on the RGB PIP specified.

RGB PIP

The following commands are those that act on the RGB PIPs contained in the display's configuration.

PBB

Description
PBB adjusts the blue balance of the picture-in-picture's RGB setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PBG

Description
PBG adjusts the green balance of the picture-in-picture's RGB setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PBR

Description
PBR adjusts the red balance of the picture-in-picture's RGB setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PCK

Description
PCK toggles the chroma key feature ON/OFF.

Argument
Provide a "1" for ON and a "0" for OFF.

PDS

Description
PDS has the display place all of the RGB picture-in-picture settings back to the factory defaults.

Argument
No arguments.

PHB

Description
PHB sets the upper-bound of the blue portion of the RGB value used for chroma key. The upper-bound of the color is determined by taking the color value that is desired (0-255) and adding a guardband value to take into account accuracy limitations of the hardware. The upper-bound limit is still 255 even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

> default for PIP 1 = Cyan (R:0,G:255,B:255)
>
> default for PIP 2 = Magenta (R:255,G:0,B:255)
>
> default for PIP 3 = Chartreuse (R:135,G:255,B:0)
>
> default for PIP 4 = Sand (R:255,G:204,B:153)
>
> default guardband = 50

The default for this command is the blue portion of the above RGB values plus the guardband.

PHC

Description
PHC adjusts the horizontal coarse setting.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PHF

Description
PHF adjusts the horizontal fine setting.

Argument
The allowable range is 0-248 base10. The factory default is 119.

PHG

Description
PHG sets the upper-bound of the green portion of the RGB value used for chroma key. The upper-bound of the color is determined by taking the color value that is desired (0-255) and adding a guardband value to take into account accuracy limitations of the hardware. The upper-bound limit is still 255 even with the guardband.

58

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

default for PIP 1 = Cyan (R:0,G:255,B:255)

default for PIP 2 = Magenta (R:255,G:0,B:255)

default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the green portion of the above RGB values plus the guardband.

PHP

Description
PHP adjusts the horizontal location of the RGB PIP.

Argument
The allowable range is 0-800 base10. The position of the PIP is based on a relative location system. Every two display pixels is equal to 1 relative location increment. The origin (0,0) is the upper-left hand corner of the display, with 800,0 being the upper-right, 0,600 is the lower-left, and 800,600 being the lower-right. Taking into account the 2:1 ratio, a value of 400 will place the RGB PIP's upper-left hand corner at the half way point horizontal on the display.

PHR

Description
PHR sets the upper-bound of the red portion of the RGB value used for chroma key. The upper-bound of the color is determined by taking the color value that is desired (0-255) and adding a guardband value to take into account accuracy limitations of the hardware. The upper-bound limit is still 255 even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

default for PIP 1 = Cyan (R:0,G:255,B:255)

default for PIP 2 = Magenta (R:255,G:0,B:255)

default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

59

The default for this command is the red portion of the above RGB values plus the guard-band.

PIC

Description
PIC adjusts the contrast of the RGB PIP.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PLB

Description
PLB sets the lower-bound of the blue portion of the RGB value used for chroma key. The lower-bound of the color is determined by taking the color value that is desired (0-255) and subtracting a guardband value to take into account accuracy limitations of the hard-ware. The lower-bound limit is still "0" even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

> default for PIP 1 = Cyan (R:0,G:255,B:255)
>
> default for PIP 2 = Magenta (R:255,G:0,B:255)
>
> default for PIP 3 = Chartreuse (R:135,G:255,B:0)
>
> default for PIP 4 = Sand (R:255,G:204,B:153)
>
> default guardband = 50

The default for this command is the blue portion of the above RGB values minus the guardband.

PLG

Description
PLG sets the lower-bound of the green portion of the RGB value used for chroma key. The lower-bound of the color is determined by taking the color value that is desired (0-255) and subtracting a guardband value to take into account accuracy limitations of the hard-ware. The lower-bound limit is still "0" even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

> default for PIP 1 = Cyan (R:0,G:255,B:255)
>
> default for PIP 2 = Magenta (R:255,G:0,B:255)
>
> default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the green portion of the above RGB values minus the guardband.

PLR

Description
PLR sets the lower-bound of the red portion of the RGB value used for chroma key. The lower-bound of the color is determined by taking the color value that is desired (0-255) and subtracting a guardband value to take into account accuracy limitations of the hardware. The lower-bound limit is still "0" even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

default for PIP 1 = Cyan (R:0,G:255,B:255)

default for PIP 2 = Magenta (R:255,G:0,B:255)

default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the red portion of the above RGB values minus the guardband.

PON

Description
PON toggles the RGB PIP ON/OFF.

Argument
Provide a "1" to turn ON and a "0" to turn OFF.

PPC

Description
PPC changes the size of the RGB PIP. The aspect ratio of the native glass (4:3) is maintained by the display.

Argument
The allowable range is 10-800 base10. Providing a value of 800 makes the PIP fill the display.

PVP

61

Description
PVP adjusts the vertical position of the RGB PIP.

Argument
The allowable range is 0-600 base10. The position of the PIP is based on a relative loca-
tion system. Every two display pixels is equal to "1" relative location increment. The origin
(0,0) is the upper-left hand corner of the display, with 800,0 being the upper-right, 0,600 is
the lower-left, and 800,600 being the lower-right. Taking into account the 2:1 ratio a value
of 300 will place the RGB PIP's upper-left hand corner at the half way point vertically on
the display.

NTSC PIP

The following commands are those that act on the NTSC PIPs contained in the display
configuration.

PCK

Description
PCK toggles the chroma key feature ON/OFF.

Argument
Provide a "1" for ON and a "0" for OFF.

PDS

Description
PDS has the display place all of the NTSC picture-in-picture settings back to the factory
defaults.

Argument
No arguments.

PHB

Description
PHB sets the upper-bound of the blue portion of the RGB value used for chroma key. The
upper-bound of the color is determined by taking the color value that is desired (0-255)
and adding a guardband value to take into account accuracy limitations of the hardware.
The upper-bound limit is still 255 even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the
PIPs being addressed. There are currently four chroma key colors used as default colors
they are the following:

        default for PIP 1 = Cyan (R:0,G:255,B:255)

        default for PIP 2 = Magenta (R:255,G:0,B:255)

        default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the blue portion of the above RGB values plus the guard-band.

PHG

Description
PHG sets the upper-bound of the green portion of the RGB value used for chroma key. The upper-bound of the color is determined by taking the color value that is desired (0-255) and adding a guardband value to take into account accuracy limitations of the hardware. The upper-bound limit is still 255 even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

default for PIP 1 = Cyan (R:0,G:255,B:255)

default for PIP 2 = Magenta (R:255,G:0,B:255)

default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the green portion of the above RGB values plus the guardband.

PHP

Description
PHP adjusts the horizontal location of the NTSC PIP.

Argument
The allowable range is 0-800 base10. The position of the PIP is based on a relative loca-tion system. Every two display pixels is equal to 1 relative location increment. The origin (0,0) is the upper-left hand corner of the display, with 800,0 being the upper-right, 0,600 is the lower-left, and 800,600 being the lower-right. Taking into account the 2:1 ratio, a value of 400 will place the NTSC PIP's upper-left hand corner at the half way point horizontal on the display.

PHR

Description
PHR sets the upper-bound of the red portion of the RGB value used for chroma key. The upper-bound of the color is determined by taking the color value that is desired (0-255) and adding a guardband value to take into account accuracy limitations of the hardware. The upper-bound limit is still 255 even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

>   default for PIP 1 = Cyan (R:0,G:255,B:255)
>
>   default for PIP 2 = Magenta (R:255,G:0,B:255)
>
>   default for PIP 3 = Chartreuse (R:135,G:255,B:0)
>
>   default for PIP 4 = Sand (R:255,G:204,B:153)
>
>   default guardband = 50

The default for this command is the red portion of the above RGB values plus the guard-band.

PLB

Description
PLB sets the lower-bound of the blue portion of the RGB value used for chroma key. The lower-bound of the color is determined by taking the color value that is desired (0-255) and subtracting a guardband value to take into account accuracy limitations of the hard-ware. The lower-bound limit is still "0" even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

>   default for PIP 1 = Cyan (R:0,G:255,B:255)
>
>   default for PIP 2 = Magenta (R:255,G:0,B:255)
>
>   default for PIP 3 = Chartreuse (R:135,G:255,B:0)
>
>   default for PIP 4 = Sand (R:255,G:204,B:153)
>
>   default guardband = 50

The default for this command is the blue portion of the above RGB values minus the guardband.

PLG

Description
PLG sets the lower-bound of the green portion of the RGB value used for chroma key. The lower-bound of the color is determined by taking the color value that is desired (0-255) and subtracting a guardband value to take into account accuracy limitations of the hard-ware. The lower-bound limit is still "0" even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

default for PIP 1 = Cyan (R:0,G:255,B:255)

default for PIP 2 = Magenta (R:255,G:0,B:255)

default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the green portion of the above RGB values minus the guardband.

PLR

Description
PLR sets the lower-bound of the red portion of the RGB value used for chroma key. The lower-bound of the color is determined by taking the color value that is desired (0-255) and subtracting a guardband value to take into account accuracy limitations of the hardware. The lower-bound limit is still "0" even with the guardband.

Argument
The allowable range is 0-255 base10. The default value is dependent on which one of the PIPs being addressed. There are currently four chroma key colors used as default colors they are the following:

default for PIP 1 = Cyan (R:0,G:255,B:255)

default for PIP 2 = Magenta (R:255,G:0,B:255)

default for PIP 3 = Chartreuse (R:135,G:255,B:0)

default for PIP 4 = Sand (R:255,G:204,B:153)

default guardband = 50

The default for this command is the red portion of the above RGB values minus the guardband.

PON

Description
PON toggles the NTSC PIP ON/OFF.

Argument
Provide a "1" to turn ON and a "0" to turn OFF.

PPC

Description
PPC changes the size of the NTSC PIP. The aspect ratio of the native glass (4:3) is maintained by the display.

Argument
The allowable range is 10-800 base10. Providing a value of 800 makes the PIP fill the display.

65

PVB

Description
PVB adjusts the NTSC PIP image brightness.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PVC

Description
PVC adjusts the NTSC PIP image contrast.

Argument
The allowable range is 0-255 base10. The factory default is 128.

PVP

Description
Adjusts the vertical position of the NTSC PIP.

Argument
The allowable range is 0-600 base10. The position of the PIP is based on a relative loca-tion system. Every two display pixels is equal to "1" relative location increment. The origin (0,0) is the upper-left hand corner of the display, with 800,0 being the upper-right, 0,600 is the lower-left, and 800,600 being the lower-right. Taking into account the 2:1 ratio, a value of 300 will place the NTSC PIP's upper-left hand corner at the half way point vertically on the display.

PVT

Description
PVT adjusts the NTSC PIP image color.

Argument
The allowable range is 0-255 base10. The factory default is 128.