BARCO

Visibly yours

INSTALLATION AND OPERATOR'S MANUAL
Model VMS-100

RECORD OF CHANGES

REV #	DATE	ECO #	DESCRIPTION	Approved By
A	03/18/2003	1001	Release to production.	April Luong
B	05/21/2003	1059	Addition of the storage for Keystone and User-defined warp maps	April Luong
C	07/03/2003	1066	Addition of the Rotation Mode	April Luong
D	10/10/2003	1155	Modify the Capture and Display Menu interface	April Luong
E	8/03/04	1301	Expanded to cover new features in Maincode release 2.04	Jim Rodeo

Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels
There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source
This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product
This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals.

A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord
Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse
To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres
To avoid explosion, do not operate this product in an explosive atmosphere.

Terms In This Manual and Equipment Marking

| WARNING | *Highlights an operating procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of personnel.* |

NOTE *Highlights an essential operating procedure, condition or statement.*

CAUTION

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

AVERTISSEMENT!

Le point d´exclamation dans un triangle equilatéral signale à alerter l´utilisateur qu´il y a des instructions d´operation et d´entretien tres importantes dans la litérature qui accompagne l´appareil

VORSICHT *ein Ausrufungszeichen innerhalb eines gleichwinkeligen Dreiecks dient dazu,*
den Benutzer auf wichtige Bedienungs-und Wartungsanweisungen in der Dem
Great beiliegenden Literatur aufmerksam zu machen.

ScreenSHAPER
Quick Start Guide

1. Identify the following items supplied with the ScreenSHAPER:
    a. ScreenSHAPER system unit
    b. ScreenSHAPER AC power cable
    c. DVI to HD-15 interface adapters (2 supplied)
    d. RS-232 serial cable, 6 ft. P/N 14-9760048-00
    e. CDROM containing Setup and Calibration software and manual

2. Set up an external computer (not supplied) to be used to configure and calibrate the ScreenSHAPER. This computer requires the following:
    a. Windows 95, 98, 2000, NT or XP operating system
    b. CDROM drive
    c. 20 Megabytes free hard disk space
    d. One RS-232 serial port configured as COM1, COM2, COM3, or COM4
    e. Video card capable of 1280x1024 output resolution
    f. Video monitor capable of 1280x1024 display resolution
    g. Keyboard
    h. Mouse

3. Equipment Setup
    a. Connect the image source to the VIDEO IN connector on the rear of the ScreenSHAPER. Use the supplied DVI to HD-15 adapter (p/n 15-000002-00) as required.
    b. Connect the output device to the VIDEO OUT connector on the rear of the ScreenSHAPER. Use the supplied DVI to HD-15 adapter (p/n 15-0000002-00) as required.
    c. Connect the supplied serial cable to the RS-232 connector on the rear of the ScreenSHAPER.
    d. Connect the other end of the supplied serial cable to the RS-232 serial port of the external computer.
    e. Power on the external computer. When it has finished booting, install the setup and calibration software from the CDROM. Note that this software is not configured for AUTORUN so it will be necessary to display the contents of the CDROM using Windows Explorer and double-click on the installation. Follow the on-screen instructions to complete the installation.
    f. Power on the external output display device (projector or monitor).

4. Power on the ScreenSHAPER and wait for it to complete its initialization sequence. The video source should be displayed on the output device.

5. Start the Setup and Calibration program by clicking on the Start->Folsom Research->Calibration Software.

6. Follow the instructions in the Setup and Calibration Manual to complete the setup, calibration, and configuration of the ScreenSHAPER.

This is a quick reference guide. For detailed information on the ScreenSHAPER, please refer to the Installation and Operating Manual supplied with your unit.

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Introduction

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ScreenSHAPER™

Video Mapping System

Model VMS-100

Introduction

About the ScreenSHAPER

The ScreenSHAPER accepts analog RGB video or digital DVI video from one video source and re-maps the image for display on a non-flat or off-axis surface using a projector. The output video is generated in analog and DVI format. An external computer is required to generate the "warp map" used to correct for the non-flat or off-axis surface.

Typical Operation

The ScreenSHAPER can be used whenever it is necessary to project images from a projector to a non-flat or off-axis surface. Typical applications include advertising displays, flight simulators, keystone correction, and home theater.

Features

- Accepts RGB and DVI video input with resolutions up to 1280x1024, non-interlaced

- Automatically locks to the input video and processes it in real-time

- Processes the entire input image or a user-defined "area of interest"

- Supports independent X,Y scaling for aspect ratio corrections

- User-selectable output formats: VGA (640x480), SVGA (800x600), XGA (1024x768), SXGA (1280x1024), 1280x720, 1280x768, 1280x960

- Supports analog RGB and digital DVI concurrent video output

- Simple, intuitive front panel controls support quick setup

- RS-232 serial interface for remote control of all functions with Graphical User Interface software

- Rugged 19" rack-mount chassis

- Non-volatile storage for configuration data

- Built-in test pattern generator

- Backed by a full 3-year parts and labor warranty

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CHAPTER TWO

Installation

What you will find in this chapter…

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❑ *Rack-Mount Installation*

❑ *Remote Control Connection*

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❑ *Power Cord/Line Voltage Selection*

ScreenSHAPER™
Video Mapping System

Model VMS-100

Installation

Rear Panel Connectors
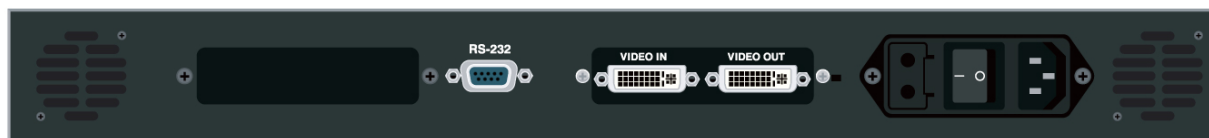
Figure 2-1: ScreenSHAPER Rear Panel

Rack-Mount Installation

ScreenSHAPER units are designed to be rack mounted and are supplied with front rack-mount hardware. Rear rack-mount brackets are available as a kit and are recommended for use when units are mounted in transit cases. When rack mounting the unit, remember that the maximum ambient operating temperature for the unit is 40 degrees C. Leave at least one inch of space front and rear to make sure that the airflow through the fan and vent holes is not restricted. When installing equipment into a rack, distribute the units evenly to prevent hazardous conditions that may be created by uneven weight distribution. Connect the unit only to a properly rated supply circuit. Reliable grounding (earthing) of rack-mounted equipment should be maintained.

RS-232 Remote Control Connection

The RS-232 serial port is used to connect the ScreenSHAPER to an external computer to support setup and calibration of the ScreenSHAPER. The serial port is configured as a DCE device which allows a straight-through serial cable to be used to connect the ScreenSHAPER to the PC. The cable connecting to the ScreenSHAPER should have a DB-9 male connector. Pinouts for the remote port are shown below. The cable supplied with the unit, p/n 14-9760048-00, or equivalent RS-232 serial cable should be used to connect the ScreenSHAPER to the external computer.

DCE	DB-9	I/O	RS-232 Signal Name	ScreenSHAPER Signal Description
CD	1	O	Carrier Detect	Carrier Detect from Remote Control PC
RXD	2	O	Received Data	Data Sent to Remote Control PC
TXD	3	I	Transmitted Data	Data From Remote Control PC
DTR	4	I	Data Terminal Ready	Data Terminal Ready from Remote Control PC
GND	5	x	Signal Ground	Signal Ground
DSR	6	O	Data Set Ready	Data Set Ready Output to Remote Control PC
RTS	7	I	Request To Send	Request To Send from Remote Control PC
CTS	8	O	Clear To Send	Clear To Send Output to Remote Control PC
RI	9	O	Ring Indicator	Unused

Video In and Video Out Connectors

Two DVI-I female connectors are located on the rear panel of the ScreenSHAPER. One is used for VIDEO IN and one is used for VIDEO OUT. Adapters are supplied to connect HD-15 cables to the DVI-I connector for analog devices.
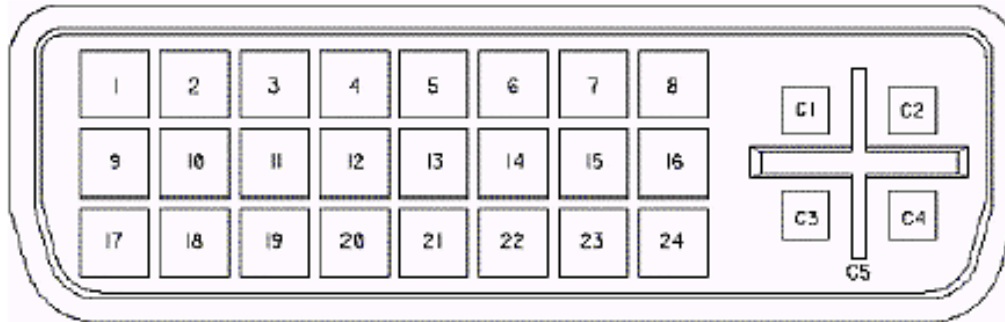
Pin	Function	Pin	Function
1	T.M.D.S. Data2-	13	T.M.D.S. Data3+
2	T.M.D.S. Data2+	14	+5V Power
3	T.M.D.S. Data2/4 Shield	15	ground (for +5V)
4	T.M.D.S. Data4-	16	Hot Plug Detect
5	T.M.D.S. Data4+	17	T.M.D.S. Data0-
6	DDC Clock	18	T.M.D.S. Data0+
7	DDC Data	19	T.M.D.S. Data0/5 Shield
8	Analog Vertical Sync	20	T.M.D.S. Data5-
9	T.M.D.S. Data1-	21	T.M.D.S. Data5+
10	T.M.D.S. Data1+	22	T.M.D.S. Clock Shield
11	T.M.D.S Data1/3 Shield	23	T.M.D.S. Clock+
12	T.M.D.S. Data3-	24	T.M.D.S. Clock-

MicroCross Pins	
Pin	**Function**
C1	Analog Red Video
C2	Analog Green Video
C3	Analog Blue Video
C4	Analog Horizontal Sync
C5	Analog Common Ground Return

Legend

DDC = Display Data Channel

T.M.D.S. = Transition Minimized Differential Signal

Power Cord/Line Voltage Selection

The ScreenSHAPER is rated to operate with the following supplies:
Input Power: 98-264VAC, 47-63 Hz
Power Consumption: 45 watts maximum

The ScreenSHAPER performs line voltage selection automatically. No user controls are required for line voltage selection.

WARNING

When the ScreenSHAPER is used with 230-volt supplies, a UL listed line cord rated for 250 volts at 15 amps must be used. This cord will be fitted with a tandem prong-type plug.

Tandem Plug

AVERTISSEMENT
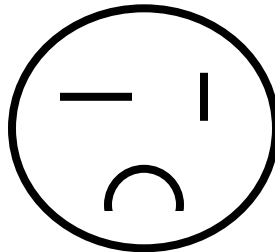
La choix de la ligne de voltage se realize automatiquement par le ScreenSHAPER Transformateur Graphique On n'apas besoin du controller usager pour la choix de la ligne de voltage.

AVERTISSEMENT

Das ScreenSHAPER -Gerät mu beim Anschlu an 240V ~ mit einer vom VDE auf 250V/10A geprüften Netzleitung mit einem Schukostecker ausgestattet sein.

Connect ScreenSHAPER to AC power using the power cord supplied with the unit. Locate the power switch on the power entry module at the rear of the unit and turn the power on. While the main board is initializing, "please wait" will be displayed and the front panel keys will be turned on and off. When initialization is complete, the Status Display screen will be displayed.

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den Benutzer auf wichtige Bedienungs-und Wartungsanweisungen in der Dem
Great beiliegenden Literatur aufmerksam zu machen.

WARNING

The rear panel ON/OFF switch does not disconnect the unit from input AC power. To facilitate disconnection of AC power, the power cord must be connected to an accessible outlet near the unit. Building Branch Circuit Protection: For 115 V use 20 A, for 230 V use 8 A.

WARNING

When the ScreenSHAPER is used in the 230-volt mode, a UL listed line cord rated for 250 volts at 15 amps must be used and must conform to IEC-227 and IEC-245 standards. This cord will be fitted with a tandem prong-type plug.

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CHAPTER THREE
Operation

What you will find in this chapter…

- ❏ *Front Panel Controls*

- ❏ *System Status Display*

- ❏ *Menu Control*

- ❏ *Input Video Setup Menu*

- ❏ *Output Video Setup Menu*

- ❏ *Test Pattern Menu*

- ❏ *System Setup Menu*

ScreenSHAPER™
Video Mapping System
Model VMS-100

Operation

The ScreenSHAPER must be set up and calibrated using an external computer (not supplied) and the ScreenSHAPER Calibration Software (provided). The front panel can be used to make minor configuration adjustments to the input and output settings. The front panel controls are described in detail in this section; the serial port commands are described in the next section.

Front Panel Controls
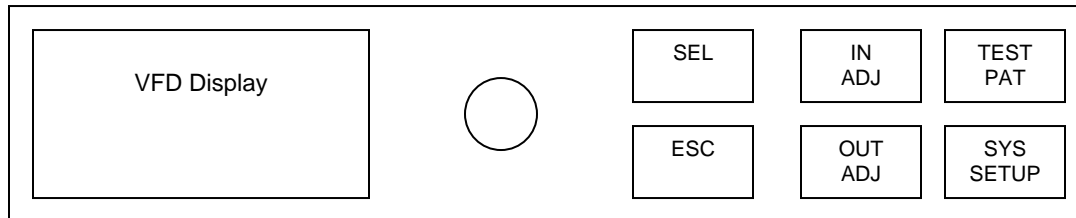
Figure 3-1 ScreenSHAPER Front Panel

The Front Panel controls include a vacuum fluorescent display (VFD), an adjustment knob, and six illuminated push buttons.

The operation of each menu displayed on the VFD is described in detail in the following sections of this document.

Power Up Initialization

Locate the power switch on the rear panel and turn the ScreenSHAPER ON. While the system is initializing, the following message will be displayed on the VFD display:

```
ScreenSHAPER
VERSION 2.04
INITIALIZING
PLEASE WAIT...
```

The version number displayed is the system software version number. The software version number will change as software upgrades are released.

System Status Display

The System Status Display is displayed whenever a configuration menu is not being displayed. This four-line display contains "SYSTEM STATUS" on the first line indicating that this is the system status display screen. The second line contains the video input format and the input type (ANALOG or DIGITAL). The third line contains the output resolution and frame rate. Depending on the mode of operation, the last line contains the current operation status. The status information could be the Warping Mode or the Rotation Setting. "TEST" is displayed if a test pattern is being generated by the internal test pattern generator.

Warp Mode: *Rotation Mode:*

```
SYSTEM STATUS
 INPUT:   SXGA   ANALOG
 OUTPUT: SXGA   60HZ
 WARP        OFF   LIVE
```

```
SYSTEM STATUS
 INPUT:   SXGA   ANALOG
 OUTPUT: SXGA   60HZ
 ROTATION 0      LIVE
```

Menu Control

The adjustment knob as well as the SEL and ESC keys is used to navigate through a series of menus displayed on the VFD display. The menus are used to enter setup parameters. Once setup parameters are entered, they are stored in non-volatile memory for future use using the system save menu item. Pressing one of the four hot keys will call up the corresponding menu on the VFD.

The user can scroll through the menu items by turning the ADJUST control knob. A pointer (>) at the left of a menu item indicates the current position of the scroll bar. When the desired menu item is reached, the user presses the SEL key to select that menu item. The sub-menu pointer (>>) at the right of a menu item indicates that a sub-menu will be displayed if that menu item is selected. The pointer at the left hand side of the display changes to a pound sign (#) indicating that a parameter is selected. After a parameter has been selected, the user can modify the associated parameter values by turning the ADJUST control knob. The operator can accept the changes with SEL or press ESC to exit the current menu item without modifying current settings.

In this section, the Factory Reset values are displayed in the menu diagram.

Input Setup Menu

This menu is used to configure the input. It is displayed when the **IN ADJ** key is pressed on the front panel.

```
INPUT SETUP
SAVE SETTINGS          ^
AUTO CONFIG            ^
SYNC SELECT         AUTO
H TOTAL             1688
HPOS (PIXELS)        360
VPOS (LINES)          40
CAPTURE AREA         N/A
PHASE OFFSET           0
BRIGHTNESS        100.0%
CONTRAST          100.0%
RGB COLOR BAL         >>
RESET CONFIG           ^
```

Save Settings

This menu selection is used to save changes made in the Input Setup menu to non-volatile memory. If this menu item is not selected, changes will not be saved and the previous settings will be restored the next time the system is powered on.

Auto Config

This menu selection invokes the unit to perform an automatic sampling of the input video. The unit will attempt to capture the entire input based on the presence of data. The accuracy is higher on inputs that have a bright border around the entire image. This operation may take a minute or so. Do not perform an Auto Config on an entirely black image.

Sync Select

The sync format specifies the type of frame sync to be applied to the input video. The following settings are available:

- AUTO - Automatically determine the output sync format
- H/V -   Horizontal and Vertical Sync
- COMP - Composite Sync
- SOG -   Sync on Green

The default setting is AUTO.

H Total

This control sets the horizontal total number of pixel clock periods (active and blanking) during one horizontal line. The default setting is the number of pixels in the input video based on the input resolution.
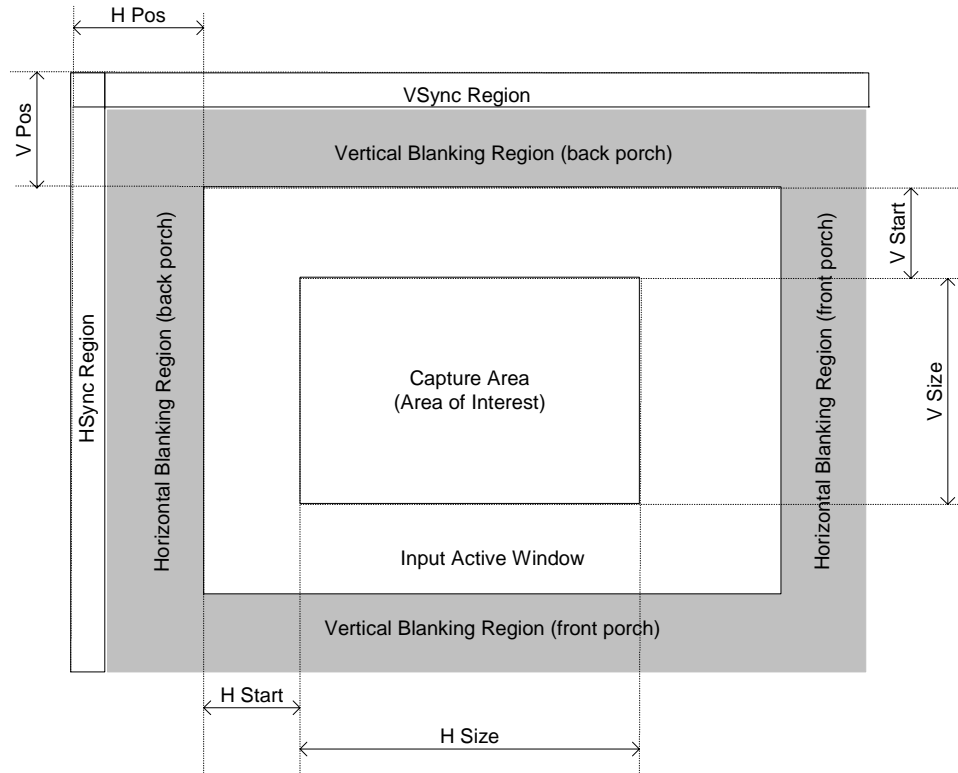
Figure 3-2 Capture Area Definition

H Position

This control adjusts the horizontal start of the active video in number of pixels. The default setting is the position of the expected first pixel of the active video, based on the input resolution. See Figure 3-2 for detail.

V Position

This control adjusts the vertical start of the active video in number of lines. The default setting is the position of the expected first line of the active video, based on the input resolution. See Figure 3-2 for detail.

Capture Area Submenu

The following four configuration controls, available when operating in the Rotation Mode, are used to set an input "area of interest". The default settings define a full-screen based on the resolution of the selected input source. These settings can be changed to define a particular rectangle within the full screen to zoom into.

```
CAPTURE AREA
 H START            0
 H SIZE          1280
 V START            0
 V SIZE          1024
```

H Start

H Start is used to set the horizontal start of the capture area in number of pixels. See Figure 3-2 for detail. The default setting is 0.

H Size

H Size is used to set the horizontal size of the capture area in number of pixels. See Figure 3-2 for detail. The default setting and the maximum setting is the number of active pixels of the input video, based on the input resolution.

V Start

V Start is used to set the vertical start of the capture area in number of lines. See Figure 3-2 for detail. The default setting is 0.

V Size

V Size is used to set the vertical size of the capture area in number of lines. See Figure 3-2 for detail. The default setting and the maximum setting is the number of active lines in the input video, based on the input resolution.

Phase Offset

Phase Offset is used to adjust the input sample clock phase. This control can be used to fine tune the image to eliminate artifacts due to input sampling clock phase errors. Changes can be made between –16 and 15. Since DVI video input requires no phase adjustment, this option is only available when using an analog video input.

Contrast and Brightness Adjustments

The Contrast and Brightness controls allow the operator to adjust the overall contrast and brightness of the image if the input is analog. The adjustment range is 75.0% to 125.0%. 100% is the default setting for both contrast and brightness. Contrast and brightness adjustments are only available when using an analog video input.

RGB Color Balance Submenu

The RGB Color Balance menu item is used to display a submenu where color balance adjustments are performed.

This menu allows the operator to balance the colors on the RGB input source. Independent Contrast and Brightness adjustments are provided for each color channel.

```
RGB  COLOR  BALANCE
 R   CONTRAST      0.0%
 R   BRIGHTNESS    0.0%
 G   CONTRAST      0.0%
 G   BRIGHTNESS    0.0%
 B   CONTRAST      0.0%
 B   BRIGHTNESS    0.0%
 RESET  COLOR
```

The adjustment range for Brightness and Contrast is -25.0% to +25.0% with 0.0% as the default value.

The Reset Color menu item resets all the fields in this sub menu to the default value (0.0%). To reset the color balance controls, scroll to the Reset Color menu item and select the menu item with the SEL key.
Color balance adjustments are not available when using a DVI video input.

Reset Color

This menu selection resets the input parameters to the default settings.

Output Setup Menu

The OUTPUT SETUP Menu allows the user to control output image configurations. Based on the Operation Mode, either the Warp Output Setup or the Rotation Output Setup menu is displayed when the **OUT ADJ** menu key is pressed on the front panel.

Warp Mode:

```
WARP OUTPUT SETUP
SAVE SETTINGS          ^
WARPING              OFF
WARP MAP INDEX         0
V KEYSTONE             0
H KEYSTONE             0
FREEZE               DIS
FORMAT  SXGA 1280x1024
FRAME RATE          60Hz
SYNC SELECT        +H+V
GAMMA CORRECTION    >>
TIMING LOCK         DIS
RASTER BOX          OFF
```

Rotation Mode:

```
ROT OUTPUT SETUP
SAVE SETTINGS          ^
ROTATION               0
FLIP                 OFF
FREEZE               DIS
FORMAT  SXGA 1280x1024
FRAME RATE          60Hz
SYNC SELECT        +H+V
DISPLAY AREA         >>
GAMMA CORRECTION     >>
TIMING LOCK         DIS
RASTER BOX          OFF
```

Save Settings

This menu selection is used to save changes made in the Output Setup menu to non-volatile memory. If this menu item is not selected, changes will not be saved and the previous settings will be restored the next time the system is powered on.

Warping

The warping function can be set to OFF/ON/KEYSTONE*. The default is set to OFF.

*The keystone function currently only supports these input-output settings:
    SVGA, XGA and SXGA inputs to SXGA output
    SVGA, XGA and SXGA inputs to XGA output
    SVGA and XGA inputs to SVGA output

Warp Map Index

If the warping function is set to ON, the image is processed according to the warp map indexed by this parameter. There are 9 warp maps that can be loaded and recalled by setting the Warp Map Index. The warp map has to be loaded prior to turning the warping function ON. It is required that the loaded warp map was generated for the current input-output resolution.

V Keystone

If the warping function is set to KEYSTONE, this menu selection set the vertical index of the keystone warp. The default is set to 0.

H Keystone

If the warping function is set to KEYSTONE, this menu selection set the vertical index of the keystone warp. The default is set to 0.

Rotation

There are four possible rotation angles that can be selected for the output: 0, 90, 180, and 270 degrees. Zero degree corresponds to an un-rotated image and is the default setting.

Flip

Flip causes the output image to be "mirrored". Three settings are available: OFF, HORZ, and VERT. HORZ causes the output image to be mirrored left/right. VERT causes the output image to be mirrored top/bottom. The default setting is OFF.

Freeze

Freeze the display image.

Format

The format is the desired resolution of the output video. The following settings are available:
- VGA -   640 x 480*
- SVGA - 800 x 600
- XGA -   1024 x 768
- SXGA - 1280 x 1024
- 1280x720
- 1280x768
- 1280x960

*VGA output is not supported if the input format is 1280x1024.

The default setting is SXGA.

Frame Rate

The frame rate specifies the number of times per second that the image is updated. The following settings are available:
- 50Hz
- 60Hz
- 75Hz
- 59.94Hz

The default setting is 60Hz.

Sync Select

The sync format specifies the type of frame sync to be applied to the output video. The following settings are available:
- SOG -   Sync on Green
- -C -   Composite Sync
- +H+V - Pos Horizontal and Pos Vertical Sync
- +H-V -   Pos Horizontal and Neg Vertical Sync
- -H+V -   Neg Horizontal and Pos Vertical Sync
- -H-V -   Neg Horizontal and Neg Vertical Sync

The default setting is +H+V.

Display Area Submenu

The following four configuration controls, available when operating in the Rotation Mode, are used to set an output display area. The default settings define a full-screen based on the selected output resolution. These settings can be changed to define a particular rectangle within the active output frame.

```
DISPLAY AREA
 LEFT EDGE          0
 RIGHT EDGE      1280
 TOP EDGE           0
 BOTTOM EDGE     1024
```
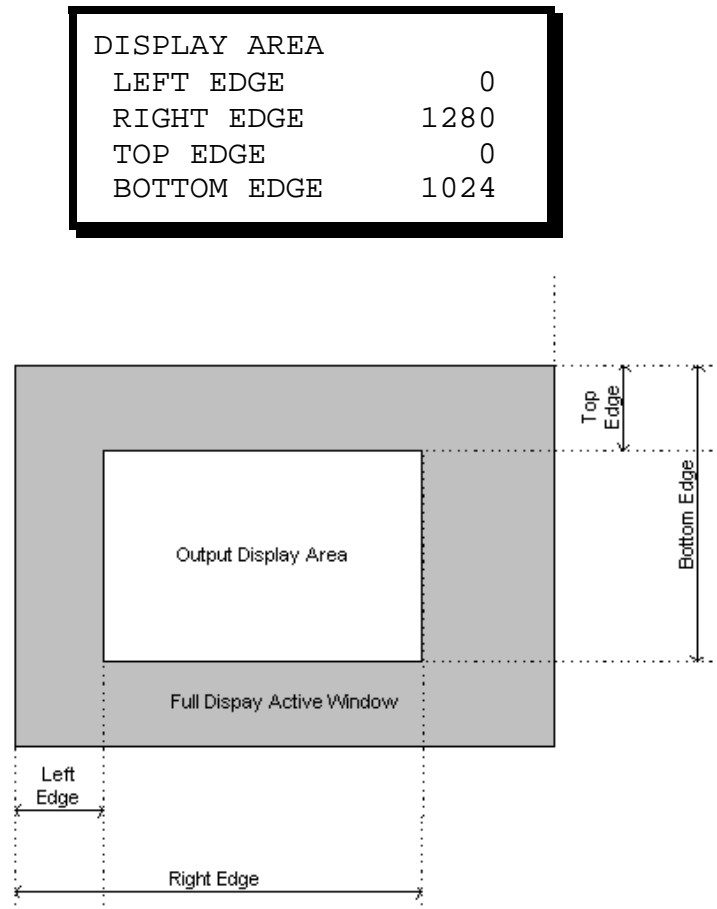

Figure 3-3 Display Area Definition

Left Edge

Left Edge is used to set the output display area. This control adjusts the left edge by changing the width of the blank area on the left. See Figure 3-3 for detail. The default setting is 0.

Right Edge

Right Edge is used to set the output display area. This control adjusts the position of the right edge. See Figure 3-3 for detail. The default setting is 1280.

Top Edge

Top Edge is used to set the output display area. This control adjusts the top edge by changing the width of the blank area on the top. See Figure 3-3 for detail. The default setting is 0.

Bottom Edge

Bottom Edge is used to set the output display area. This control adjusts the position of the bottom edge. See Figure 3-3 for detail. The default setting is 1024.

Gamma Correction Submenu

Gamma Correction can be applied to the individual color components of the output.

```
GAMMA CORRECTION
 R GAMMA         1.0
 G GAMMA         1.0
 B GAMMA         1.0
```

R Gamma

The Red Gamma value is applied to the red component of the output. The default setting is 1.0 which is no correction at all.

G Gamma

The Green Gamma value is applied to the green component of the output. The default setting is 1.0 which is no correction at all.

B Gamma

The Blue Gamma value is applied to the blue component of the output. The default setting is 1.0 which is no correction at all.

Timing Lock

Timing Lock is used to lock the output timing to the input timing. It is important to select the output resolution and frame rate that matches the input resolution and frame rate. The default setting is DIS.

Raster Box

Raster Box is used to enable the display of a one pixel wide box on the output. The settings for this control are ON and OFF. The default setting is OFF.

Test Pattern Setup Menu

The Test Menu allows the user to select various pre-programmed test patterns to display for positioning and calibrating projectors. This menu is displayed by pressing the **TEST PAT** key on the front panel. Configuration parameters entered in this menu are saved in non-volatile memory if you issue a SAVE SETTINGS command under the System Setup Menu.

```
TEST PATT SETUP
PATTERN            OFF
GRID               OFF
BOX                OFF
EDGE FEATHER        >>
```

Pattern

The Pattern menu item allows the user to select a test pattern for display. To select a test pattern, scroll to the Pattern menu item, select the menu item with the SEL key and then turn the adjustment knob to select the desired test pattern. Each test pattern is displayed as the adjustment knob is turned. Press SEL to accept the newly entered settings or ESC key to exit without accepting the changes that have been entered. The OFF selection disables the internal test pattern generator and return to live conversion mode. Available test patterns are:

- OFF   Live video is processed (used for normal operation)
- BURST1   One On/One Off test pattern
- BURST2   One On/One Off test pattern
- GRAY H BARS   Horizontal gray scale bars
- RED H BAR   Red horizontal bars
- GREEN H BAR   Green horizontal bars
- BLUE H BAR   Blue horizontal bars
- YELLOW H BAR   Yellow horizontal bars
- CYAN H BAR   Cyan horizontal bars
- MAGENTA H BAR   Cyan horizontal bars
- BLACK   Display a black image
- GRAY 25%   Displays a 25% white image
- GRAY 50%   Displays a 50% white image
- GRAY 75%   Displays a 75% white image
- WHITE   Displays a 100% white image
- H RAMP   Displays a horizontal ramp

The default pattern setting is OFF.

Test Pattern Grid

The Grid menu item allows the user to overlay a grid on the output image. To control the display of the Grid, scroll to the Grid menu item, select the menu item with the SEL key and then turn the ADJUST control to select the desired output. The OFF selection is used to disable the display of the grid, ON enables the display. The grid can be displayed on the test patterns or over live data. The default setting is OFF.

Test Pattern Box

The Test Pattern Box menu item allows the user to overlay a border on the output image. To control the display of the Test Pattern Box, scroll to the Test Pattern Box menu item, select the menu item with the SEL key and then turn the ADJUST control to select the desired output. The OFF selection is used to disable the display of the Test Pattern Box, ON enables the display. The Test Pattern Box can be displayed on the test patterns or over live data. The default setting is OFF.

Edge Feather Submenu

The Edge Feather Submenu contains the controls to define the edge feather characteristics.

```
EDGE FEATHER
 LEFT FEATHER      DIS
 LEFT WIDTH         64
 LEFT GAMMA        1.0
 RIGHT FEATHER     DIS
 RIGHT WIDTH        64
 RIGHT GAMMA       1.0
 CURVE EQUATION    3rd
```

Left Feather

Left Edge Feathering can be Enable/Disable by this control. The default is set to Disable.

Left Width

The width of the left feathering area is a value between 0 and half the horizontal width of the input. The default is set to 64.

Left Gamma

The gamma value applied to the left edge feathering equation. The default is set to 1.0.

Right Feather

Left Edge Feathering can be Enable/Disable by this control. The default is set to Disable.

Right Width

The width of the left feathering area is a value between 0 and half the horizontal width of the input. The default is set to 64.

Right Gamma

The gamma value applied to the left edge feathering equation. The default is set to 1.0.

Curve

The Curve selects the edge feather function from 1st, 3rd, 5th, 7th or 9th order equation. The default is the 3rd order equation.

System Setup Menu

The System Setup Menu allows the user to control input frame synchronization, change the configuration of the serial port, provides information for access to factory technical support and allows the system to be completely reset to factory default values. This menu is displayed by pressing the **SYS SETUP** key on the front panel.values.

```
SYSTEM SETUP
SAVE SETTINGS         ^
SERIAL PORT          >>
F/W VERSIONS         >>
TECH SUPPORT         >>
DIAGNOSTICS          >>
VFD BRIGHTNESS        8
OPERATION MODE     WARP
SYSTEM RESET         >>
```

Save Settings

This menu selection is used to save changes made in the System Setup menu to non-volatile memory. If this menu item is not selected, changes will not be saved and the previous settings will be restored the next time the system is powered on.

Serial Port Submenu

The ScreenSHAPER has one serial port that is configured for RS-232 operation. The serial port parameters are under this submenu. Configuration parameters entered in this menu are saved in non-volatile memory if you issue a SAVE SETTINGS command under the System Setup Menu.

```
SERIAL MODE      RS-232
 ECHO               ON
 BAUD RATE       38.4K
 DATA BITS           8
 STOP BITS           1
 PARITY           NONE
 HANDSHAKING        ON
 RESET RS-232        ^
```

Echo

The user can turn ECHO ON or OFF. When ECHO is ON, commands received by the unit will be transmitted back to the source device. The default setting is ON.

Baud Rate

The following baud rate settings are supported 1200, 2400, 9600, 19.2K, and 38.4K. The default baud rate setting is 38.4 Kb.

Data Bits

The number of data bits per character can be set to 7 or 8. The default setting is 8.

Stop Bits

The number of stop bits can be set to 1 or 2. The default setting is 1 stop bit.

Parity

Parity can be set to Even, Odd or None. The default setting is NONE.

Handshaking

Handshaking can be set to On or Off. The default setting is ON.

Reset RS-232

All RS-232 parameters can be reset to factory defaults by selecting this menu item and pressing the SEL key.

Firmware Versions Menu

The Firmware Versions Menu displays the revision information for the system firmware. A sample revision display is shown below.

```
FIRMWARE REVISIONS
MAIN  AAAA 8/14/2004
BOOT  BBBB 8/14/2004
LOADR CCCC 8/14/2004
VMINC DDDD 8/14/2004
VMMUX EEEE 8/14/2004
BOARD S/N         1
```

Tech Support Menu

The Tech Support Menu displays the current firmware version number, the customer service telephone number to contact for technical assistance, and the Internet address to obtain product news and to download firmware revisions.

```
TECH SUPPORT
VERSION      02.04
PHONE: 866-374-7878
WEB: www.folsom.com
```

Diagnostics Menu

Selecting DIAGNOSTICS will display the following menu:

```
DIAGNOSTICS
FRONT PANEL TEST   >>
I2C TEST           >>
```

Front Panel Test

This selection tests the front panel VFD display, the knob, and the key LEDs. All pixels on the display are tested from top to bottom and then from left to right. The display should illuminate all pixels. The next test will change the display brightness in 16 steps. Then the key LEDs are tested and the user is asked to turn the knob and verify that the displayed position indicator changes correctly.

I2C Bus Test

The I2C Test verifies the operation of the internal communication paths to major system components including the input analog to digital converter, the warp processor, and the EEPROM. All tests should indicate "PASS" when done.

VFD Brightness
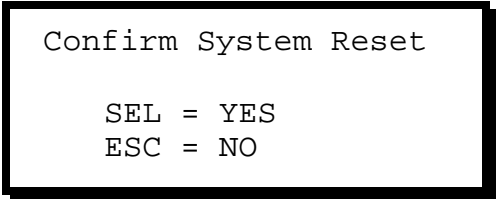
The VFD Brightness menu selection controls the intensity of the front panel vacuum fluorescent display (VFD). The adjustment range is 0 to 15. 0 is the dimmest setting and 15 is the brightest. We recommend using a low intensity setting to avoid "burn-in" of the display. The default setting is 8.

Operation Mode

This control selects the mode of operation.   Under the Warp Mode, the ScreenSHAPER unit can process images using previously stored user-defined warp maps or keystone warp maps. Under the Rotate Mode, the ScreenSHAPER unit can rotate images and adjust the capture and display area.

System Reset

Selecting SYSTEM RESET will display the following menu:

```
 Confirm System Reset

    SEL = YES
    ESC = NO
```

Pressing the SEL key will reset the system to factory configuration and reboot the system. All stored input configuration files are cleared.

Pressing the ESC key will return the user to the SYSTEM SETUP Menu.

CHAPTER FOUR

Remote Commands

What you will find in this chapter…

❑ *ScreenSHAPER Command List/Description*

ScreenSHAPER
Video Mapping System
Model VMS-100

Remote Commands

BAUD n	Baud Rate: n[0|1|2|3] 1.2K|9.6K|19.2K|38.4K	
BLKLVL n n n	Black Level Mode, Threshold and Offset Intensity: n[0-3] n[0-255] n[0-255]	
CAP n n n n	Capture Input: HStart, HSize, VStart, Vsize	
COLEN n n	Color Enable: n[0|1|2|3] All|Red|Green|Blue	
CONF	Reconfigure Board (FACTORY USE ONLY)	
CSUM	Display Checksum of Files in Flash	
CURVE n	Blend Curve Selection: n[0-4] 1st|3rd|5th|7th|9th	
DBIT n	Data Bit: n[7|8]	
DEBUG password	Debug Mode: For internal use only.	
DISP n n n n	Display Region: HStart, HEnd, VStart, Vend	
ECHO n	Echo Enable/Disable: n[0|1] DISABLE|ENABLE	
EFTA s en w exp	Advanced Edge Feather Lut: side, enable, width, exponent s[L|R] en[0|1] w[0-640] exp[1.0-5.0]	
FLIP n	Flip Image: n[0-2] No Flip|H Flip|V Flip	
FREEZ	Freez Image: n[0|1] DISABLE|ENABLE	
FSB n	Force Scaler Black: n[0|1] OFF|ON	
GAM n n n	Gamma Value command: n[1-3] VPC|GPC|DPC n[0-3] All|Red|Green|Blue n[0.0 - 5.0]	
HELP I	Help Command: i[A-Z], Help Index	
IBRT op nnn	Input Brightness: op[C|R|G|B|I|D] (C)n[75..125]% (R,G,B)n[-25..25]%	
ICNT op nnn	Input Contrast: op[C|R|G|B|I|D] (C) n[75..125]% (R,G,B)n[-25..25]%	
ICPHO op nn	Input Clock Phase Offset: op[A|M] Auto|Manual nn[-16..15]	
ICPL op nnnn	Input Clocks Per Line: op[A|M] Auto|Manual nnnn[0..4096]	

ICREC n n	Input Configuration Recall:
	    n[0-6]CNF Index, n[User|Standard]
	    Standard: 640x480|800x600|1024x768|1280x1024
	        1280x720|1280x768|1280x960	

ICRST	Input Configuration Reset	
ICSAV	Input Configuration Save	
ID	Query Board ID	

INFO	System Information Command: FACTORY USE ONLY
INFO2	System Information Command: FACTORY USE ONLY
IRSP n n	Input Raster Size/Position: n[L|R|T|B] n[-999..999]
ISYNC n	Input Sync.: n[0..3] SOG|CSYN|H&V|AUTO
KEY n n	Load Keystone warp: n[0-10] n[-8-8], VIndex HIndex
LNW	Load new warp coefficients
LOADR	Loader Mode: Place Warper Board into Loader Mode
MAP n	Load User-defined warp map: n[0-8]
OCRECF n	Output Resolution: n[0..6] 640x480|800x600|1024x768|1280x1024| 1280x720|1280x768|1280x960
OFRATE n	Output Frame Rate n[0|1|2|3] 50Hz|60Hz|75Hz|59.94Hz
OP n	Operation Mode: n[0|1] WARP|ROTATE
ORAS n	Output Raster Box: n[0|1], Disable|Enable
OSYNC n	Output Sync.: n[0..5] SOG|-C|+H+V|+H-V|-H+V|-H-V
PAR n	Parity Type: n[0|1|2] NONE|ODD|EVEN
RESET op	Reset - Factory Defaults: op[A] All
ROT n	Rotate Image: n[0|90|180|270]
SAVE	Save System Settings
SBIT n	Stop Bit: n[1|2]
SYNC n	Select Output Sync Mode: n[0|1|2] Freerun|Linelock|Framelock
TLCK n	Lock Output to Input Timing Command: n[0|1|2] (Off|Lock to Input|Lock to Ext Sync)
TPAT typ bx gr	Test Pattern Type: typ[0-15] (Off|Burst1|Burst2|Grey H Bars|Red H Bars| Green H Bars|Blue H Bars|Yellow H Bars|Cyan H Bars| Magenta H Bars|Black|Gray 25%|Gray 50%|Gray 75%| White|Horz Ramp) bx[0|1] OFF|ON gr[0|1] OFF|ON
VER	Version Information
WARP n	Warping Enable: n[0-2], OFF|ON|Keystone

ScreenSHAPER Command List/Description

Command:
        BAUD n
Description: Set the baud rate for serial command port.
Parameters: **n**   [0|1|2|3] 1.2K|9.6K|19.2K|38.4K
Query:
      BAUD ?
      Returns the current baud rate
            =n
Example: BAUD 3   (Set the baud rate to 38.4K)

Command:
        BLKLVL n n n
Description: Set the parameters for black level adjustment on non-blended region of the image. The Adjustment
            Mode determines how the Threshold and Offset value are applied to the non-blended region of the image.
Parameters: **n**   Black Level Adjustment Mode,
                0 = Bypass
                1 = Floor Method. If image intensity is less then Threshold, then set the image intensity to
                Offset Intensity.
                2 = Floor Offset. If image intensity is less then Threshold, then add the Offset Intensity to
                the image intensity.
                3 = Force Offset. Add the Offset Intensity to the image intensity regardless of the image
                intensity.
          n   Non-blended region threshold Intensity, [0-255]
          n   Non-blended region offset Intensity, [0-255]
Query:
      BLKLVL ?
    Returns the parameters that defines the black level adjustment.
            = n n n
Example: BLKLVL 2 128 10 (Add 10 to the non-blended region if the intensity is less then 128).
            BLKLVL 1 128 190 (Set the intensity of the non-blended region to 190 if the intensity is less then
            128).

Command:
        CAP n n n n
Description: Capture an area of interest on the input.
Parameters: **n** - Horizontal Start on the input image
             n - Horizontal Size on the input image
             n - Vertical Start on the input image
             n - Vertical Size on the input image
Query:
      CAP ?
      Returns the Hstart, Hwidth, Vstart and Vlength of the input.
            = n n n n
Example: CAP 0 1280 0 1024 (Capture the standard image for SXGA input.)

Command:
        COLEN n n
Description: Allows independent On/Off control over each color channel.
Parameters: **n** – [0-3] All|Red|Green|Blue
             n – [0|1] Disable|Enable
Query:
      COLEN ?
      Returns the enable status of Red Green and Blue.
            = r g b
Example: COLEN 1 0 (Turn off the red color channel.)

Command:
     CONF
Description: Reconfigure board. Factory use only.
Parameters: None
Query: None
Example: Conf   (The ScreenSHAPER resets using current configuration values.)

Command:
     CSUM
Description: Display the checksum of the files in flash. For debug use only.
Parameters: None
Query: None
Example: CSUM   (The checksum of the files in flash will be display in the terminal.)

Command:
     CURVE n
Description: Select the blend curve algorithm for edge feathering.
Parameters: **n**   [0-4] $1^{st}|3^{rd}|5^{th}|7^{th}|9^{th}$
Query:
     CURVE ?
     Returns the current select curve algorithm.
          =n
Example: CURVE 0   (Select the linear blend curve algorithm.)

Command:
     DBIT n
Description: Set the number of data bits for serial command port.
Parameters: **n**   [7|8]
Query:
     DBIT ?
     Returns the number of data bits
          =n
Example: DBIT 8   (Set 8 data bits)

Command:
     DEBUG password
Description: Enter or exit the Debug Mode.
Parameters: **password**   Enter the debug mode, 0 to exit the debug mode.
Query:
     DEBUG ?
     Returns the current debug mode
          =n
Example: DEBUG 0   (Exit debug mode.)

Command:
     DISP n n n n
Description: Define the region on the output to display image. The numbers are based on the start of the active
     display window. This command is only recognized in the ROTATE Operation Mode.
Parameters: **n** - Horizontal Start on the display
          n - Horizontal End on the display
          n - Vertical Start on the display
          n - Vertical End on the display
Query:
     DISP ?
     Returns the HStart, HEnd, VStart, VEnd in the following format:
     = n n n n

Example: DISP 128 896 96 672 (Set the display region accordingly.)

Command:
    ECHO n
Description: Turn echo OFF/ON for the serial port.
Parameters: **n**   [0|1] OFF/ON
Query:
    ECHO ?
    Returns the current echo mode
        =n
Example: ECHO 1   (Turn echoing ON)

Command:
    EFTA s en w exp
Description: Set the edge feathering parameters.
Parameters: **s**   [L|R] Left|Right
        en   [0|1] Disable|Enable
        w   Width of feathering area: [0-640]
        exp   gamma value: [1.0-5.0]
Query:
    EFTA s ?
    Returns the edge feathering parameters
        =en w exp
Example: EFTA L 1 64 1.0 (Apply edge feathering to 64 pixels on the left side of the image with a gamma of 1.0.)

Command:
    FLIP n
Description: Flip the Display Image. This command is only recognized in the ROTATE Operation Mode.
Parameters: **n** -   flip mode; [0|1|2], No Flip|Horizontal Flip|Vertical Flip
Example: FLIP 1   (Flip the display image left to right.)
        FLIP 2   (Flip the display image top to bottom.)

Command:
    FREEZ n
Description: Freeze Display Image
Parameters: **n** -   freeze mode; [0|1], DISABLE|ENABLE
Example: FREEZ 1   (display will be freezed.)
        FREEZ 0   (display will processed from input.)

Command:
    FSB n
Description: Force Display Black
Parameters: **n** -   force display black mode; [0|1], OFF|ON
Example: FSB 1   (display will show a black screen.)
        FSB 0   (display will show the current input source.)

Command:
>**GAM n n n**

Description: Set the gamma value of the warper chip. Note: This is not the gamma value used for the edge
          feathering. Default is set to 1.0.

Parameters: **n**   Table selection, 1-3, VPC|GPC|DPC
          n   Color selection, 0-3, All|Red|Green|Blue
          n   Gamma Value; 0.0-5.0

Query:
>GAM ?
>Returns the current gamma value.
>>GPC/VPC = n.n n.n n.n
>>DPC = n.n n.n n.n

Example: GAM 2 0 1.5   (Set the gamma value to 1.5 for all colors on the GPC.)
          GAM 3 1 1.0   (Set the gamma value to 1.0 for Red on the DPC.)

Command:
>**HELP i**

Description: Displays the list of available commands that begin with i
Parameters: i   Help index
Example: HELP o   (Display the commands that begin with "o".)

Command:
>**IBRT op nnn.n**

Description: Adjusts the Input Brightness value of the current source.
Parameters: **op** -   Select Brightness Control; [C|R|G|B], Common|Red|Green|Blue
          nnn.n - Brightness value; C Range 75 to 125%, RGB Range -25 to 25%

Query:
>IBRT ?
>Returns the Input Brightness of the Common, Red, Green, and Blue of the current source in the
>format:
>>=ccc.c rr.r gg.g bb.b

Example: IBRT C 110   (Adjusts the Input Brightness for the current source to be
                       110%.)
          IBRT ?   (Returns the Input Brightness for Common, Red, Green,
                       and Blue.)

Command:
>**ICNT op nnn.n**

Description: Adjusts the Input Contrast values of the current source.
Parameters: **op** -   Select Contrast Control; [C|R|G|B], Common|Red|Green|Blue
          nnn.n - Contrast value; C Range 75 - 125%, RGB Range -25 - 25%

Query:
>ICNT ?
>Returns the Input Contrast of the Common, Red, Green, and Blue of the current source in the
>format:
>>=ccc.c rr.r gg.g bb.b

Example: ICNT C 100   (Adjusts the Common Input Contrast value as 100%.)
          ICNT ?   (Returns the input Contrast for Common, Red, Green and
                       Blue.)

Command:

    ICPHO op nn

Description: Adjusts the Input Clock Phase Offset of the current source.
Parameters: **op**   option[A|M] Auto|Manual
                  nn   Phase value; [-16…15]
Query:
     ICPHO ?
     Returns the Input Clock Phase of the current source in the format:
               =nn
Example: ICPHO m 7   (Set the input phase offset to 7.)
               ICPHO d   (Enter the debug mode for adjusting the input phase offset.)

Command:

    ICPL op nnnn

Description: Adjusts the Input Clocks Per Line of the current source.
Parameters: **op**   option[A|M] Auto|Manual
                  nnnn   Clocks per Line value; [0 - 4096]
Query:
     ICPL?
     Returns the Input Clocks Per Line of the current source in the format:
               =nnnn
Example: ICPL m 1688   (Set the input clocks per line to 1688.)
               ICPL d   (Enter the debug mode for adjusting input clocks per line. In the debug mode,
                                     I = Increment
                                     D = Decrement
                                     .. = Exit debug mode.)

Command:

    ICREC n n

Description: Recall an input configuration.
Parameters: **n**   Configuration index[0-6] for standard library
                          Configuration index[1] for user library
                  n   Library[User|Standard
                         Standard: 640x480|800x600|1024x768|1280x1024|
                                     1280x720|1280x768|1280x960
Example: ICREC 1 0   (Loads the user saved input configuration index by 1.)
               ICREC 2 1   (Loads the standard input configuration for 1024x768 video)

Command:

    ICRST

Description: Resets the input configuration of the current source.
Parameters: None
Example: ICRST   (Resets the input configuration for the current source.)

Command:

    ICSAV n

Description: Saves all of the Input Configurations to non-volatile RAM (NOVRAM)
Parameters: **n**   Configuration index[1]
Example: ICSAV 1   (Saves the all the current input configurations to
                                NOVRAM.)

Command:

    ID

Description: Query Board ID
Parameters: None
Example: ID
               Returns the Board ID.
               =n

Command:
     INFO
Description: System Information Command. For internal use only
Parameters: NONE
Example: NONE

Command:
     INFO2
Description: System Information Command. For internal use only
Parameters: NONE
Example: NONE

Command:
     IRSP   n n
Description: Adjust the input active window.
Parameters: **n**   Edge to adjust, L|R|T|B, Left|Right|Top|Bottom
              n   Offset, [-999..999].
Example: IRSP l 2   (Adjust the left edge 2 pixels to the right.)
              IRSP B -2   (Adjust the bottom edge 2 lines up.)

Command:
     ISYNC n
Description: Adjusts the Input Sync selection of the current source.
Parameters: **n** -   Mode; [0|1|2|3], SOG|COMP|H/V|AUTO
Query:
    ISYNC?
    Returns the Input Sync Mode of the current source in the format:
         =n
Example: ISYNC 0 (Sets Scaler to expect SOG on the input channel.)

Command:
     KEY n n
Description: Load a new keystone warp map from flash into the coefficient dual port ram of the warper chip.
              This command is only recognized in the WARP Operation Mode.
Parameters: **n** -   V Index of keystone, [0-10]
              n -   H Index of keystone, [-8-8]
Query:
    KEY ?
    Returns the currently selected keystone indexes.
         = n n
Example: KEY 1 1 (The keystone warp map (1,1) is loaded into the DPR.)

Command:
     LNW
Description: Load a new user defined warp map from flash into the coefficient dual port ram of the warper chip.
              This command is only recognized in the WARP Operation Mode.
Parameters: None
Query:
    None
Example: LNW   (The user defined warp map is loaded into the DPR.)

Command:
     LOADR
Description: Places unit into loader mode. This mode is used to perform field upgrades
Parameters: None.

Command:
> **MAP n**

Description: Index a user-defined warp map. The warp map has to be loaded prior to turning the warping
                function ON. It is required that the loaded warp map was generated for the current input-output
                resolution. This command is only recognized in the WARP Operation Mode.
Parameters: **n** -   Index of the user-defined warp map, [0-8]
Query:
> MAP ?

Returns the currently selected user-defined warp map.
> = n

Example: KEY 2 (The user-defined warp map [2] is loaded.)

Command:
> **OCRECF n**

Description: Select the Output Resolution
Parameters: **n** -   Output Resolution
                            0 = VGA, 640x480*
                            1 = SVGA, 800x600
                            2 = XGA, 1024x768
                            3 = SXGA, 1280x1024
                            4 = 1280x720
                            5 = 1280x768
                            6 = 1280x960

                            *VGA is not supported if the input format is 1280x1024
Query:
> OCRECF ?

Returns the Output Resolution in the format:
> =n

Example: OCRECF 2   (Select output format to be XGA.)

Command:
> **OFRATE n**

Description: Adjusts the Output Frame Rate.
Parameters: **n** -   frame rate; [0|1|2|3], 50Hz|60Hz|75Hz|59.94Hz
Query:
> OFRATE ?

Returns the Output Frame Rate in the format:
> =n

Example: OFRATE 1   (Sets the output frame rate to 60Hz.)

Command:
> **OP n**

Description: Set the operation mode for ScreenShaper products. The warping functions are only available when
                operating in WARP mode and the rotation functions are only available when operating in ROTATE mode.
Parameters: **n** -   operation mode, [0|1] WARP|ROTATE
Query:
> OP ?

Returns the operation mode:
> =n

Example: OP 1   (Set the ScreenShaper unit to operation in ROTATE mode.)
                OP 0   (Set the ScreenShaper unit to operation in WARP mode.)

Command:

      ORAS n

Description: Puts a white raster box on the output display if Rotation is at 0 degree. If Rotation is at 90, 180 or
                       270, the output raster box can not be enabled.
                       Note: If the display area is not full screen, the edge area will be white when Output Raster Box is
                       Enabled.

Parameters: **n** -   [0|1] Disable|Enable

Query:

      ORAS ?

      Returns the output raster box mode:

           =n

Example: ORAS 1   (Select to put a white raster box on the output display).

Command:

      OSYNC n

Description: Adjusts the Output Sync.

Parameters: **n** -   Sync mode; [0|1|2|3|4|5], SOG|-C|+H+V|+H-V|-H+V|-H-V

Query:

      OSYNC ?

      Returns the Output Sync mode in the format:

           =n

Example: OSYNC 3   (Adjusts the Output Sync value to be +H-V.)

Command:

      PAR n

Description: Set the parity type for serial command port.

Parameters: **n**   [0|1|2] NONE|ODD|EVEN

Query:

      PAR ?

      Returns the parity type

           =n

Example: PAR 1   (Set ODD parity)

Command:

      RESET op

Description: Resets all system variables or reset the system to factory defaults

Parameters: **op** -   Reset operation; [A|F], All|Factory

Example: RESET A   (Resets all system variables.)

Command:

      ROT n

Description: Rotate image. This command is only recognized in the ROTATE Operation Mode.

Parameters: **n**   [0|90|180|270]

Query:

      ROT ?

   Returns the current rotation setting

           =n

Example: ROT 90   (Rotate the image 90 degree.)

Command:

      SAVE

Description: Saves the system parameters to non-volatile RAM. Upon power up, the system
                       parameters stored in non-volatile RAM are used for system configuration.

Parameters: None

Example: SAVE   (System parameters are saved to non-volatile RAM.

Command:
       SBIT n
Description: Set the number of stop bit for serial command port.
Parameters: **n**   [1|2]
Query:
       SBIT ?
       Returns the number of stop bit.
          =n
Example: SBIT 1   (Set the serial port for 1 stop bit)

Command:
       SYNC n
Description: Selects the output sync method.
          Note: External sync input required if non-zero.
Parameters: **n**   [0|1|2] Freerun|Line Locked|Frame Locked
Query:
       SYNC ?
       Returns the current sync mode
          =n
Example: SYNC 2   (Frame lock output timing to external vertical sync.)

Command:
       TLCK n
Description: Selects HSync source to use for pixel clock generation.
          Note: External sync required if n=2
Parameters: **n**   [0|1|2] Freerun|Lock to input timing|Lock to external sync
Query:
       TLCK ?
       Returns 0 for free-run mode and 1 for lock output to input
          =n
Example: TLCK 1   (Lock output timing to input timing.)

Command:
       TPAT typ bx gr
Description: Set the test pattern parameters.
Parameters: **typ**   Test pattern type, [0-15]
               (Off|Burst1|Burst2|Grey H Bars|Red H Bars|Green H Bars|Blue H Bars|Yellow H
               Bars|Cyan H Bars|Magenta H Bars|Black|Gray 25%|Gray 50%|Gray 75%|White|Horz
               Ramp)
          bx   Raster Box, [0|1] OFF|ON
          gr   Overlay Grid, [0|1] OFF|ON
Query:
       TPAT ?
       Returns the test patter parameters
          =typ, bx, gr
Example: TPAT 2 1 0   (Output Burst1 with raster box.)

Command:
       VER
Description: Display version information.
Parameters: NONE
Example: VER   (Display the version information)

Command:
WARP n
Description: Enable/Disable the warp function. If the warp function is set to ON, the warp map used is set by the MAP command. If the warp function is set to KEYSTONE*, the warp mapused is set by the KEY command. This command is only recognized in the WARP Operation Mode.
*Note: The keystone function currently only supports these input-output settings:
SVGA, XGA and SXGA inputs to SXGA output
SVGA, XGA and SXGA inputs to XGA output
SVGA and XGA inputs to SVGA output
Parameters: **n   [0|1|2], [OFF|ON|Keystone]**
Query:
WARP ?
Returns the warp status
=n
Example: WARP 1   (Enable the warping function for user defined warp.)

CHAPTER FIVE

Software Upgrade Instructions

What you will find in this chapter…

❑ *Software Upgrade Instructions*

ScreenSHAPER™
Video Mapping System

Model VMS-100

Overview

The ScreenSHAPER units incorporate the system software in a Flash memory component. Flash memory allows easy upgrades without the need to send the unit back to the factory due to software or firmware changes.

The loader utility provides the capability to update the system Flash module with the latest revision of software. The upgrade utility can be run from a hard drive (recommended) or a floppy drive. Running the loader from a floppy drive is discouraged due to the slow speeds associated with disk access.

Hardware Requirements

* IBM compatible computer with an available COM port

* Serial cable conforming to EIA RS-232 specifications (i.e. Standard Modem cable)
 (The cable should have a DB-9 male connector on one end). The cable supplied with the unit is recommended.

Software Requirements

* Window 95/98/NT/2000/XP

* Flash File Loader

* ScreenSHAPER Software files

The Flash File Loader with the Software files can be downloaded from our FTP site as described below.

Connecting to Barco Folsom

Barco Folsom's FTP site address is: ftp.folsom.com

If you are using an FTP client, logon to our site using "anonymous" for the user name and your email address as the password (ex. johndoe@somecompany.com).
However, if you are using a web browser to access our FTP site, point the browser to: ftp://ftp.folsom.com.

Downloading Necessary Files

ScreenSHAPER Software Files and Flash File Loader

Directory Location: ftp://ftp.folsom.com\ Products \ Video \ ScreenSHAPER \
File to download: "ScreenSHAPER_Rev###.exe"

Installing ScreenSHAPER Software Files and Flash File Loader

Before installing the files, it is recommended that all running programs be properly shut down.

1. Click on the Start button and select Run.
2. Click on the Browse button and locate the " ScreenSHAPER _Rev###.exe" file on your hard drive.
3. Double click on this file and then click OK to start the installation process.
4. Follow the on screen instructions to complete the install.

Starting the Flash File Loader Utility

After the files have been installed the Flash File Loader can be selected to run.
1. Click on the Start button and select Programs.
2. Find the Folsom Research folder and select Flash File Loader.

Preparing to Upgrade the ScreenSHAPER Unit

1. Plug the DB-9 male connector into the port labeled "RS-232" on the back of the ScreenSHAPER unit.

2. Make sure the other end of the cable is attached to the available COM port on the back of the computer performing the upgrade.

3. In the loader program, click on the RS232 Config menu and select COM Port.

4. In the Communication Settings window, select the COM port the ScreenSHAPER port is attached to by clicking on the appropriate COM # choice.

5. The ScreenSHAPER RS-232 serial port defaults to a baud rate of 38400 baud (38.4K).

Uploading Files to the ScreenSHAPER Unit

1. Once communications have been established and verified, click on the "Open script file to read and upload" button to begin the upgrade process.

2. Browse to the location where the "field_upgrade.sld" file is located and click on it. Then click on "Open" to start transferring the files to the ScreenSHAPER.

3. A TRANSFER STATUS box will open and show the status of the upload as it progresses.

4. After several minutes, the loader utility will inform the user that the process is complete.

5. Power cycle the ScreenSHAPER.

CHAPTER SIX

Barco Folsom Information

What you will find in this chapter…

❏ *Warranty*

❏ *RMA Information*

❏ *Technical Support/General Contact Information*

ScreenSHAPER™
Video Mapping System

Model VMS-100

Barco Folsom Information

Barco Folsom, LLC Warranty

All video products are designed and tested to the highest quality standards and are backed by a full 3-year parts and labor warranty. Warranties are effective upon delivery date to customer and are non-transferable. Barco Folsom, LLC warranties are only valid to the original purchaser/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modifications, lightning strikes, abuse (drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair. Barco Folsom will cover shipping charges for return shipments to customers.

Return Material Authorization (RMA)

In the unlikely event that a product is required to return for repair, please call 888-414-7226 and ask for a Sales Engineer to receive a Return Merchandise Authorization number (RMA).

RMA Conditions:
   a) Prior to returning any item, you must receive a Return Merchandise Authorization (RMA) number.
   b) All RMA numbers must appear on their return-shipping label.
   c) RMA numbers are valid for ten (10) days from issue date.
   d) All shipping and insurance charges on all RMA's must be prepaid by the customer

Barco Folsom Contact Information

Sales Contact Information
Direct Sales Line: 916-859-2505
Toll Free Line: 888-414-7226
E-mail: sales@folsom.com

Technical Support Information
Tech Line: 866-374-7878 (FRI-SUPT)
E-mail: support@folsom.com

General Company Information
Barco Folsom, LLC
11101 Trade Center Drive
Rancho Cordova, CA 95670
Toll Free: 888-414-7226
Tel: 916-859-2500
Fax: 916-859-2515
Web Address: www.folsom.com
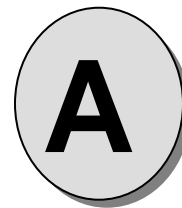
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Email: saleseurope@folsom.com

Hours of operation are Monday through Friday 0900 to 1800 (GMT +1)

APPENDIX A

❑ *Technical Specifications*

ScreenSHAPER™
Video Mapping System

Model VMS-100

Technical Specifications

Video Input

Number: 1
Video Signal Format: Analog RGB or Digital DVI
Resolution: SVGA (800x600) to SXGA (1280x1024) @60 Hz Non-Interlaced
Input Sync Signals: Sync-on-Green, Composite Sync, Separate H/V Sync
Connectors: One DVI-I Connector supports both analog and digital input. A DVI-I to HD-15 adapter is provided.
Termination: 75 ohms for analog video

Video Output

Number: 1
Video Signal Format: Outputs analog (RGB) and digital (DVI) video
Resolution: VGA (640x480) to SXGA (1280x1024) @60 Hz Non-Interlaced
Output Sync Type: Sync-on-Green, Composite Sync, Separate H/V Sync
Connectors: One DVI-I Connector supports both analog and digital output. A DVI-I to HD-15 adapter is provided.
Termination: 75 ohms for analog video

Front Panel User Controls

Vacuum Fluorescent Display (VFD)
Fine Adjustment Encoder Knob
Six illuminated push-buttons

Serial Port

Number: 1
Format: RS-232
Baud Rate: 1200, 9600, 19.2K and 38.4K
Parity: None, Even, and Odd
Data Bits: 7 or 8
Stop Bits: 1 or 2
Echo: On or Off
Hardware Handshake: On or Off
Connector: DB-9F

Physical

Height: 1RU (1.75" / 44.5 mm); Width: 17" (43.2 cm) or 19" (48.3 cm) with rack-mount option; Depth: 16" (45.5 cm);
Weight: 9 lbs (4.1 kg); Shipping Weight: 13 lbs (5.91 kg).

Input Power

98-264 VAC, 47-63 Hz, 45 W max.

Environmental

Temperature: 0-40 degrees C; Humidity: 0-95% non-condensing.

FCC Classification

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