





**RECORD OF CHANGES**

<b>REV #</b>	<b>DATE</b>	<b>ECO #</b>	<b>DESCRIPTION</b>	<b>Approved By</b>
1.0	9/2000		Preliminary	P. Norton
2.0	9/2000		Added Save Config. Submenu instructions in Section 6. Added additional Quick Start Instructions and edits to Section 7. Edits to Section 8.	P. Norton
A	10/26/00	602	Released to Production	J. Alexander
B	3/22/01	666	Revised for remote operation	R. Pellicano
C	11/1/01	768	Revised for PIP/Keying	R. Pellicano
D	1/23/01	799	Revised Operators Safety Summary	J. Alexander
E	6/27/02	880	Revised Quick Start Guide Step 6. Re-format the Table of Contents. Removed Appendix in Table of Contents Revised Ch 2 Figure 2-1, Power Cord/Line Voltage Selection, Video Output Connection section for the Main and Preview Outputs. Revised Ch 3. Output Setup Menu, Color Balance section, Updated the Miscellaneous Menu section by adding System Save feature and revised the SP+ Ext Control Menu section. Updated Ch 5 regarding the Remote Commands that reflect System Save feature and the WIN command feature. Updated T.O.C.	E. Hufana / C. Yacob
F	10/25/02	954	Revised for Letterbox mode addition to Input menu and Serial Command section.	R. Pellicano
G	5/27/03	1063	Added Display Lock and Pre-Pipped Description. Updated various menu items. Added description for TPMODE and MARKER command. Updated OTPM and DL command descriptions.	R. Pellicano
H	7/10/03	1099	Updated OCRECF, OFRATE and FSB commands. Updated the Frame Rate description. Restored DL command description. Updated OSYNC command. Added description for OSAVE command.	R. Pellicano

*Manual # 26-0002901-00*



## 1. 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 specified on the rear panel for this product and 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.

#### **Caution: Danger of explosion if battery is incorrectly placed**

Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

#### **Attention: Il y a danger d'explosion s'il y a remplacement incorrect del la batterie**

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usages conformément aux instructions du fabricant.

## 2. Terms In This Manual

#### **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 équilatéral signale à alerter l'utilisateur qu'il y a des instructions d'opération et d'entretien très importantes dans la littérature qui accompagne l'appareil

#### **VORSICHT**

ein Ausrufungszeichen innerhalb eines gleichwinkligen Dreiecks dient dazu, 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 ScreenPro 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.

## Terms As Marked on Equipment

#### **CAUTION**

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

#### **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 équilatéral signale à alerter l'utilisateur qu'il y a des instructions d'opération et d'entretien très importantes dans la littérature qui accompagne l'appareil

#### **VORSICHT**



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**NOTE** 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.



# ScreenPro™ Quick Start Guide



**Illustration of Typical ScreenPro™ Setup**

## Step 1: Connect ScreenPro™ to Output Devices

Connect one of the two available “Main” outputs to your projector. Note that the second main output may be connected to a local display monitor if the projection screen is not easily viewed by the operator.

Connect the “Preview” output to a computer monitor. (Note: The preview output timing is identical to the main output. If the main output is set to 1280 x 1024, the preview monitor must be capable of that resolution.)

## Step 2: Connect Input Sources to ScreenPro™

ScreenPro™ has eight universal inputs that accept composite (NTSC & PAL), S-video, component, and computer video sources. Connect each type of input source to ScreenPro™ as indicated in the following table.

### Input Connections

Format – RGB (Typical Devices: Computers)		Format – YUV or Y Pr Pb (Betacam) (Typical Devices: DVD Player or Betacam Deck)	
Source to ScreenPro™		Source to ScreenPro™	
R	R/CR	Y	G/Y
G	G/Y	Pr	R/CR
B	B/CB	Pb	B/CB
H	H/C	or	
V	V	Y	G/Y
Format – S-Video (Y/C) (Typical Devices: S-Video VCR)		U	R/CR
Source to ScreenPro™		V	B/CB
Format – Composite/PAL (Typical Devices: NTSC/PAL VCR)		Source to ScreenPro™	
Y	G/Y	NTSC/PAL	
C	B/CB	G/Y	

### **Step 3: Power Up**

Connect ScreenPro™ to 115 VAC 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. The unit will flash all of the front panel illuminated keys in unison, first with red, then green, and then amber. While the main board is initializing, “please wait” will be displayed. The front panel display will show the main menu and this indicates the unit has powered up successfully.

### **Step 4: Power Up Display**

The default power-up condition is to set BLK (black screen input) as the “Main” source and Source 1 as the “Preview” source.

The key for the source currently selected for the main output will be red. The key for the source currently selected for the preview output will be green. The remaining source selection keys will be white.

### **Step 5: Key Selection and Transition**

The user can easily select any of the input sources as the current preview source simply by pushing the corresponding source select key. Each time a new preview source is selected, the key for the selected source will turn green and the video on the preview monitor will display output video derived from the newly selected preview source. The currently selected preview source can be transitioned seamlessly to the main output using the Transition Effects keys. After selecting a preview source, simply press one of the three transition effect buttons. The preview source automatically and seamlessly switches to the main output and the input source previously designated for the main output and will then become the new preview source.

### **Step 6: Select Desired Output Format**

Set the video output from ScreenPro™ to match the projector or other display device. Enter the Output Setup menu by depressing the OUTPUT SETUP key. The OUTPUT SETUP key will turn from white to red.

An arrow “>” will be displayed next to “FORMAT.” Press the “Select” key. A solid block will start to flash in the arrow location. Rotating the encoder dial will scroll through the available output resolutions. Stop on the desired output resolution and press “Select.” The output is now set to the desired output format. When finished, press the OUTPUT SETUP key and the display will prompt the user to save the output settings. Pressing Select (SEL) will save the output parameters to Flash memory and pressing PREV MENU will exit the output setup menu.

### **Step 7: Projector Adjustments**

Proper projector setup is critical to optimize the quality of the output image. Once ScreenPro’s output is set to match the native resolution of the projector, the scaling engine in the projector should be disabled. The methods used to disable the internal scaler within the projector vary from manufacturer to manufacturer. ScreenPro’s Output Setup menu allows the user to select test patterns that are used during projector adjustment. Please consult the operator’s manual for your equipment.

### **Step 8: Configure Input Sources**

ScreenPro™ will automatically lock to video applied to the eight universal inputs and will make a “best guess” at the video format (RGB, YUV, S-Video, NTSC/PAL) and all associated video parameters. While the “best guess” approach generally leads to an acceptable output image, it is **strongly recommended** that the user set up a configuration file to precisely define the video parameters associated with each input before running a show. The use of configuration files provides consistent, repeatable operation and allows the user to adjust video parameters for each source to optimize image quality. Up to 64 configuration files can be stored for use. Each time a source is selected with the Source Selection keys, the configuration file associated with that source is automatically reloaded.

***Setting up input configuration files is simple. Proceed as follows for each input.***

1. Select the source you wish to work with as the Preview source.
2. Press the INPUT SETUP menu key. Examine the image on the Preview monitor and adjust the input parameters as desired. The Input Setup menu is described in detail in Chapter 3 of the Installation and Operating Manual. Many of the parameters may require no adjustment, however, be sure that the INPUT TYPE menu item is selected to match the incoming source. Also verify that the type of sync indicated in the PROCESSING submenu matches the incoming source.

When the input setup parameters have been set as desired, enter the SAVE submenu to save the setup parameters as a file. The next available file number is automatically shown on the first line of the SAVE INPUT FILE menu. You can use this file number to create a new file or assign another number. The third line in the menu allows you to assign an eight-character file name to the file. Entry of a file name is optional. When the file number and name have been entered, select SAVE to save the configuration. The file is saved and automatically assigned to the source used for the input setup process. The input configuration file will automatically be recalled for use each time the source is selected.

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# CHAPTER ONE

## Introduction

### What you will find in this chapter...

- *About the ScreenPro™*
- *Features*
- *Technical Description*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# Introduction

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## About the ScreenPro™

The ScreenPro™ High-Resolution Seamless Switcher is designed to simplify the task of supporting professional-quality video presentations. The unit combines a video router, two video scalers, and a full-featured control panel in a single integrated package. ScreenPro™ has eight universal inputs that accept composite video, s-video, component, and computer video sources (640x480 VGA to 1600x1200 UXGA). The input video is converted directly to the native resolution of the projection device to optimize image quality.

ScreenPro™ is ideal for use whenever multiple video sources must be switched to provide a professional-quality presentation. The operator can transition seamlessly between any of the eight different input sources. Typical applications include live staging events, corporate boardroom presentations, educational and training events. ScreenPro™ is also designed to be compatible with Folsom's ScreenPro PLUS™ product line to support fully-integrated multi-screen events.

Attention to the Installation and Operation Sections of this manual is important to ensure trouble-free operation. Should you have any questions regarding the operation of this unit, please consult the factory.

## Features

The ScreenPro™ provides and offers the following features:

- Eight high-resolution inputs accommodate composite (NTSC/PAL), s-video, component, and computer video sources
- High bandwidth (five-wire) 8:2 video router
- Motion adaptive de-interlacing
- Automatically syncs to input videos with resolutions from 640x480 to 1600x1200
- High-performance dual-scaler architecture supports seamless switching
- Transition effects include cuts, fade, dissolves, and wipes (transition duration is programmable)
- Video Mixing and Graphics Overlay using *Luminance Keying*.
- Picture in Picture Capability
- Superior image quality
- Intuitive user interface simplifies setup
- Re-configurable RS-232/485 port for remote control
- User programmable output formats: VGA (640x480), SVGA (800x600), XGA (1024x768), 1024x768 II, SXGA (1280x1024), (1280x720), (1280x768), (1365x768), (1365x1024).
- Stores pre-programmed sequences (up to 64 steps) to support scripting of shows
- Compatible with Folsom ScreenPro PLUS™ to support multi-screen events

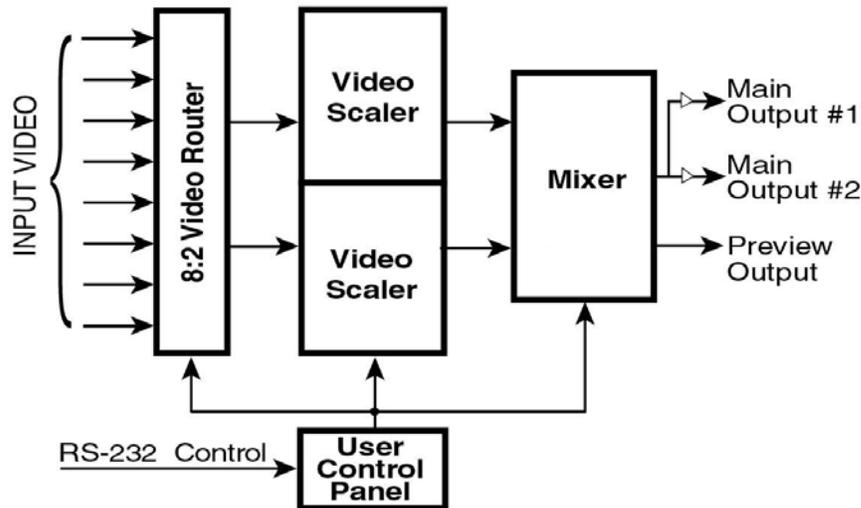
## Technical Description

The ScreenPro™ High-Resolution Seamless Switcher is a reliable system that simplifies the task of supporting professional-quality video presentations. The unit combines a video router, two video scalers, and a full-featured control panel in a single integrated package. ScreenPro™ has eight universal inputs that accept composite video, s-video, component, and computer video sources (640x480 VGA to 1600x1200 UXGA). The input video is converted directly to the native resolution or “sweet spot” of the projection device to optimize image quality. The operator can transition seamlessly between eight different input video sources.

A *Luminance keying* feature gives the ScreenPro™ a capability to mix and overlay video graphics from one video scaler over the other. Applications include overlaying titles, captions and logos over live video. This feature takes the red, green and blue data from a selected scaler as the “key” or “foreground” and converts it to 8-bits of luminance or brightness information. This luminance data is compared to a user programmable threshold on a pixel-by-pixel basis. If the luminance value of a pixel is below the threshold then the pixel data from the background scaler is displayed. If the luminance value of a pixel exceeds the threshold by 16 counts then the pixel data from the foreground scaler is displayed. If the luminance value is between the threshold value and threshold value plus sixteen, then a linear mix is performed between the two scalers. This linear mix prevents small level changes and/or noise from causing unwanted speckling on the keyed image. The linear mix also allows semi-transparent overlay effects to be performed. If the overlay luminance value is in the linear mix region it will appear semi transparent (nice effect for logos).

The ScreenPro™ supports two independently buffered main video outputs and one preview video output. The presentation viewed by the audience is provided via the Main output. The Preview output is provided to allow the operator to examine the next video source to be displayed. The ScreenPro™ user interface has been designed with intuitive, user-friendly menus to simplify system setup and adjustment. User-defined configuration files can be created, stored, recalled, and edited. ScreenPro™ also has the ability to store a series of up to 64 preprogrammed transition steps. This allows a complete show to be programmed in advance and executed by actuating a single key.

### ScreenPro™ Functional Block Diagram





# CHAPTER TWO

## INSTALLATION

### What you will find in this chapter...

- *Rear Panel Connectors*
- *Rack-Mount Installation*
- *Power Cord/Line Voltage Selection*
- *Video Input & Output Connections*
- *RS-232/485 Remote Control Connections*

**Screen****PRO**<sup>TM</sup>  
HIGH RESOLUTION SEAMLESS SWITCHER

# Installation

## Rear Panel Connectors

NOTE: Front Panel features are shown in Chapter 3.

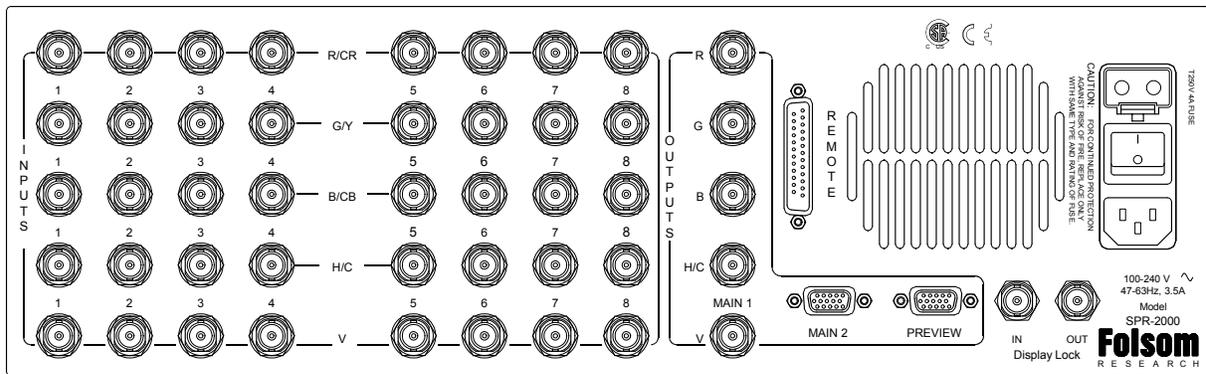
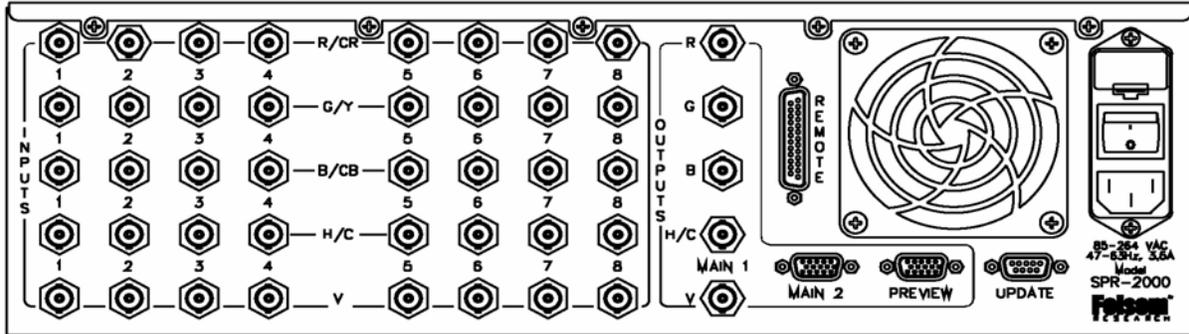


Figure 2-1: ScreenPro™ Rear Panel (Bottom Unit shown with Optional Display Lock feature installed)

### Rack-Mount Installation

ScreenPro™ 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 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.

### Power Cord/Line Voltage Selection

ScreenPro™ is rated to operate with the following supplies:

Input Power: 85-264 VAC, 47-63 Hz  
Power Consumption : 175 watts maximum

The ScreenPro™ High Resolution Seamless Switcher performs line voltage selection automatically. No user controls are required for line voltage selection.



When the ScreenPro™ 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.

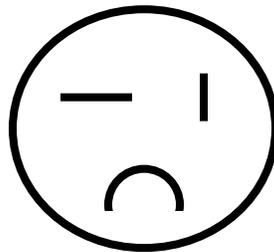


Figure 5-2: Tandem Plug



AVERTISSEMENT

La choix de la ligne de voltage se realize automatiquement par l'ScreenPro™ Transformateur Graphique On n'apas besoin du controller usager pour la choix de la ligne de voltage.



VORSICHT

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

## Video Input Connections

The video input section on the ScreenPro™ rear panel provides eight universal inputs. Each input can accept RGB, YUV, S-Video (Y/C), or composite (NTSC or PAL) video signals. The connections for each input channel are made via five BNC connectors. Connection points for each type of video signal are specified below.

Format – RGB (Typical Devices: Computers)		Format – YUV or Y Pr Pb (Betacam) (Typical Devices: DVD Player or Betacam Deck)	
Source to ScreenPro™		Source to ScreenPro™	
R	R/CR	Y	G/Y
G	G/Y	Pr	R/CR
B	B/CB	Pb	B/CB
H	H/C	or	
V	V	Y	G/Y
Format – S-Video (Y/C) (Typical Devices: S-Video VCR)		U	R/CR
Source to ScreenPro™		V	B/CB
Y		Format – Composite/PAL (Typical Devices: NTSC/PAL VCR)	
G/Y		Source to ScreenPro™	
C		NTSC/PAL	G/Y

## Video Output Connections

### Main Outputs

Two independently buffered Main outputs (one five wire BNC connection and one HD-15) are provided. Either of these outputs may be used to connect to the display device used for the presentation. The second output is designed to support a local display in the event that the operator is unable to conveniently view the presentation. Both outputs provide RGB video signals. The operator can select the type of output sync to match application requirements. Separate C (Composite) or separate H/V (Horizontal/Vertical) sync modes are supported.

Connect the outputs labeled R, G, and B on the rear panel of the ScreenPro™ unit to the correspondingly labeled connectors on the output device. Connect the C or H/V sync signals from ScreenPro™ to the correspondingly labeled connectors on the output device. If separate H/V sync mode is being used, be sure to connect both the H and V signals from the ScreenPro™ to the correspondingly labeled connector on the output device.

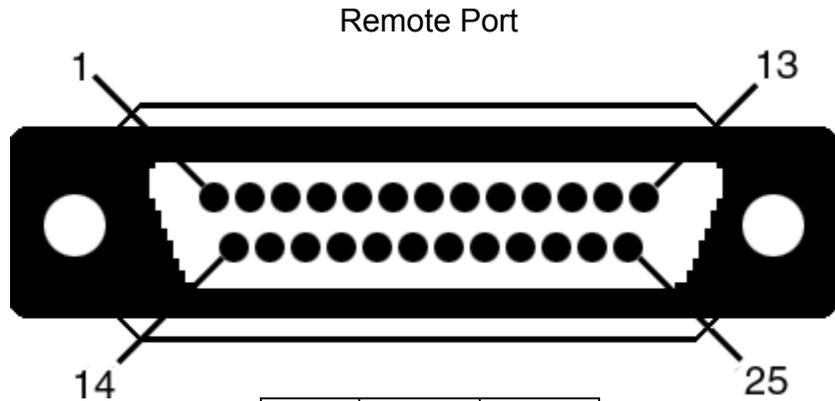
### Preview Output

One Preview output is provided on an HD-15 connector. The Preview output is provided to permit the operator to view the next source video to be displayed prior to initiating a transition. The Preview output provides an RGB video signal. Connect the outputs labeled R, G, and B on the rear panel of the ScreenPro™ unit to the correspondingly labeled connectors on the output device.

The operator can select the type of output sync to match application requirements. Separate C (Composite) or separate H/V (Horizontal/Vertical) sync modes are supported. Connect the C or H sync signals from ScreenPro™ to the correspondingly labeled connectors on the output device. If separate H/V sync mode is being used, be sure to connect both the H and V signals from the ScreenPro™ to the correspondingly labeled connector on the output device.

## RS-232/485 Remote Control Connections

The RS-232 or RS-485 serial port can be connected to a computer to support remote control of the ScreenPro™ unit. The Electronics Industry Association (EIA) has produced standards for RS232 and RS485 that deal with data communications. Below is the pinout for both RS232 & RS485 with DB25 connector.



DB25	RS232	RS485
1	Shield	Shield
2	TxD	T(-)
3	RxD	R(-)
4	RTS	N/A
5	CTS	N/A
6	DSR	N/A
7	Sig Gnd	Sig Gnd
8	DCD	N/A
10	N/A	N/A
12	N/A	N/A
14	N/A	T(+)
15	N/A	N/A
16	N/A	R(+)
19	N/A	N/A
20	DTR	N/A
21-25	N/A	N/A



# CHAPTER THREE

## Operation

### What you will find in this chapter...

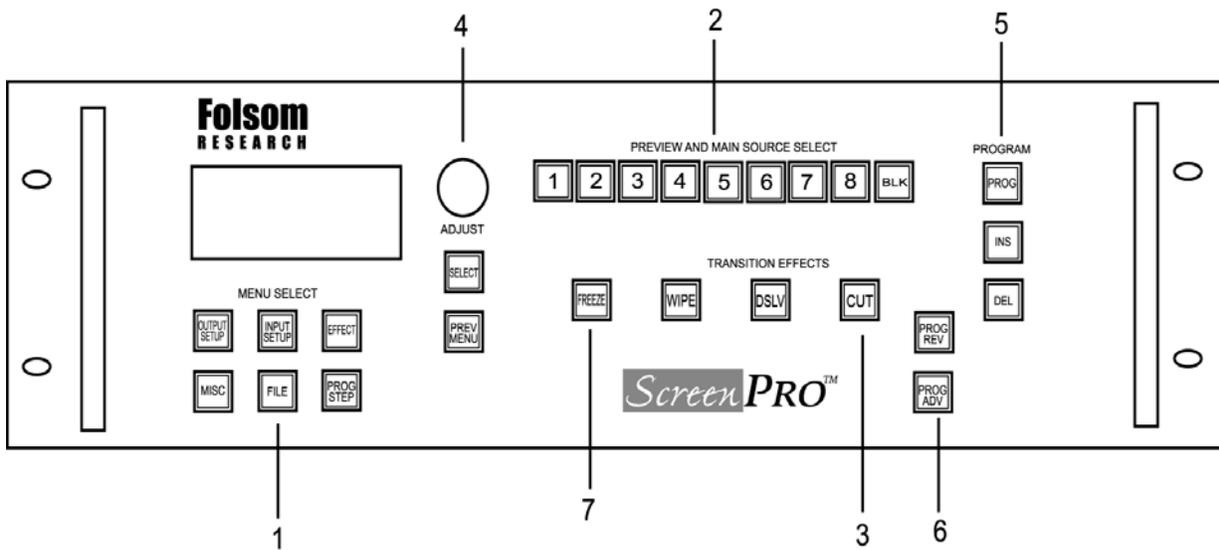
- ❑ *Front Panel Controls*
- ❑ *Restarting the Program*
- ❑ *Menu Operation*
- ❑ *RGB, S-Video, Composite, Beta, MII, and EBU Color Balance, and Processing Submenus*
- ❑ *Output Setup Menu*
- ❑ *Program Step Menu*
- ❑ *Input Setup Menu*
- ❑ *Effects Menu*
- ❑ *PIP Operation*
- ❑ *Keying Operation*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# Operation

## Front Panel Controls

NOTE: Rear Panel features are shown in Chapter 2.

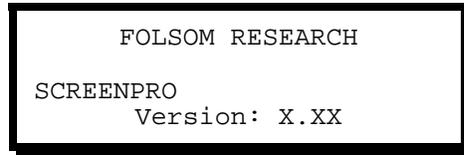


**Figure 3-1 ScreenPro™ Front Panel**

- 1 Menu Select
- 2 Preview and Main Source Select
- 3 Transition Effect Keys
- 4 Menu Adjust/Select/Prev Menu
- 5 Program Setup
- 6 Program Step
- 7 Freeze

## Power Up Initialization

Locate the power switch on the rear panel and turn ScreenPro™ on. While ScreenPro™ is initializing, the front panel indicators will cycle green, red, and white and the following menu will be briefly displayed.



The menu displays the version of software that is currently being executed. The software version number will change as software upgrades are released. The most current software version is available for download from the Folsom Research web site at [www.folsom.com](http://www.folsom.com).

When initialization is complete, the Main Menu will be displayed.

### Main/Preview Source Select Keys

Buttons 1 through 8 are used to select the eight different input sources. The BLK key can be selected to provide a black source video for Fade transitions.

The key for the source currently selected for the Main output will be red. The key for the source currently selected for the Preview output will be green. The remaining source selection keys will be white. The default power-up condition is to set BLK (black screen input) as the Main source and Source 1 as the Preview source.

The user can easily select any of the input sources as the current Preview source simply by pushing the corresponding Source Select key. Each time a new Preview source is selected, the key for the selected source will turn green and the video on the Preview monitor will display output video derived from the newly selected Preview source.

### Transition Effects

The currently selected preview source can be transitioned seamlessly to the Main output using the Transition Effects keys. After selecting a Preview source, simply press one of the three Transition Effects buttons. The Preview source will automatically and seamlessly switch to the Main output and the input source previously designated for the Main output will become the new Preview source.

There are three buttons that control transition effects; Wipe, Dissolve, and Cut. Transition duration and the type of transition (in the case of Wipes) are programmed via the Effect menu. The selected transition is performed each time one of the transition keys is pressed.

## Video Mixing and Graphics Overlay Effects (Luminance Keying)

### Keying Operation

1. The operator will select the source they want as a “key/overlay” and this source will be displayed on the preview monitor.
2. In the Effects Menu, the operator will set the WIPE TYPE to one of the key/effect types. At this point the <WIPE> key will blink between Red / Off.
3. The operator will also set the keying threshold from this menu. This can be done before or after step 4. To transition the “key/overlay” onto the main screen, the operator will press the <WIPE> key.
4. If the operator presses < DSLV > or <CUT> keys, the image will transition onto main without keying.
5. If the operator presses <WIPE>, < DSLV > or <CUT> keys while the keyed image is on the main output, the key/overlay is transitioned off of main leaving the background image showing.
6. If the operator presses any of the source select keys while the keyed image is on the main output, the key/overlay is transitioned off immediately using a “Cut”. After the transition, the new source selection is made.

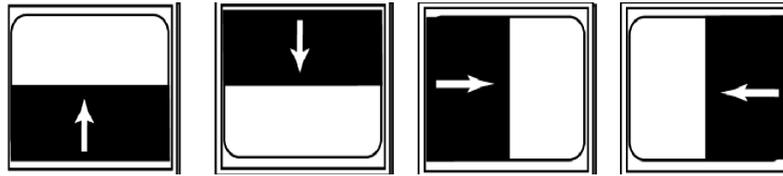
Note: The <WIPE> key will continue to function as a keying enable/transition key until the operator changes the “wipe type” to another function.

### PIP Operation

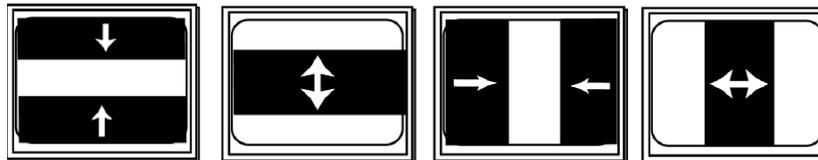
1. The operator will select the source they want as a picture-in-picture (PIP) and this source will be displayed on the preview monitor.
2. In the Effects Menu, the operator will set the WIPE TYPE to PIP MODE. At this point the <WIPE> key will blink between Red / Green and the image in Preview will automatically be resized to 50% of normal and reside in the center of the screen.
3. The operator will also set the Size and Position of the PIP from this menu. This can be done before or after step 4.
4. To transition the PIP onto the main screen, the operator will press the <DSLVL> or <CUT> key on the front panel.
5. If the operator presses <DSLVL> or <CUT> keys while the PIP image is on the main output, the PIP is transitioned off of main leaving the background image showing.
6. If the operator presses the <WIPE> key while the PIP image is on the main output, the PIP is transitioned off immediately using a “Cut” and the image is returned to full size.
7. If the operator presses any of the source select keys while the PIP image is on the main output, the PIP is transitioned off immediately using a “Cut”. After the transition, the new source selection is made.

Note: The <WIPE> key will continue to function as a PIP enable/disable key until the operator changes the “wipe type” to another function.

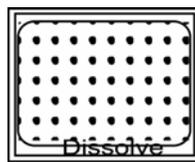
### Standard Wipe Transitions



### Curtain Wipe Transitions



### Dissolve Transition



### Freeze Effect Key

To freeze the video on the Main output, press the Freeze key. The image on the Main output will freeze and the Freeze key will turn red to indicate that freeze mode has been activated. Pressing the Freeze key a second time will de-activate freeze mode and return the output to normal operation.

Note: If a Transition Effects key is pressed when the Main output is frozen, the unit will perform the selected transition and automatically de-activate freeze mode.

### Program Keys

The Program Keys are used to enter a sequence of transitions as a stored “script” for a show. The user can store a sequence of up to 64 transitions and recall the pre-programmed transitions using a single key. Please note that PIP and Keying effects cannot be used in a program sequence.

### Program Key (PROG)

The PROG key is used to enter Program mode to store program steps. When the PROG key is depressed it blinks red and green to indicate that Program mode has been selected. In Program mode, transitions entered by the operator will be stored as program steps. The operator stores a Program step by selecting the desired Preview source and then activating a Transition Effects Key. A program step is automatically created and the step counter will be incremented.

The PROG key must be depressed a second time to disable program entry mode when the entry of program steps is complete. Note that individual program steps can be edited, inserted and deleted when in Program mode.

Note: As Program steps are defined, the transition time (for wipe and dissolve) and wipe direction can be selected using the Effect Menu.

### ***Insert Key (INS)***

To insert a step in a pre-programmed sequence, you must first press the PROG key to enter program mode. Scroll to the number where you wish to enter the new transition using the PROG ADV or PROG REV keys. After the proper step is selected, press the INS key to activate insert mode. The INS key will blink red and green to indicate insert mode is active. Select the desired Preview source and press the desired Transition Effects key to define the program step to be inserted. The new step will occupy the step number selected by the operator and all other Program step numbers will be incremented by one. Note that the INS Key must be depressed a second time to disable Insert Mode when the entry of program steps is complete.

Note: As Program steps are defined, the transition time (for wipe and dissolve) and wipe direction can be selected using the Effect menu.

### ***Delete Key (DEL)***

To delete a step in a pre-programmed sequence, press the PROG key to enter program mode and scroll to the step to be deleted using the PROG ADV and PROG REV keys. After the correct step is located press the DEL key to delete the selected program step. The selected step will be deleted and all subsequent step numbers will be decremented by one.

### ***Program ADV Key***

Once a program sequence has been created, the user can move forward through the sequence of steps using the PROG ADV key.

### ***Program REV Key***

The PROG REV key allows the user to move through a pre-programmed sequence of steps in reverse order.

### ***Program Clear***

To clear all stored program steps simply press the PROG and DEL keys simultaneously. Program memory will be cleared as indicated by removal of step display data in the Main Menu.

### ***Reviewing Program Steps***

The Program Step menu is used to review the contents of individual program steps.

## **Menu Operation**

The Menu Select keys are used to select menus on the alphanumeric display that are used to configure the unit for operation prior to running a presentation. Pressing one of the six Menu Select keys will call up the corresponding menu on the display. The operation of each menu is described in detail in the following sections of this document.

Once a menu is selected with the Menu Select keys, the Adjust control is used to scroll through the menu items. As the user scrolls through the menu items, a pointer at the left of the menu indicates the current position of the scroll bar. When the user reaches the menu item that needs to be changed, the Select key is used to select the menu item. The pointer at the left hand side of the display changes to a # symbol to indicate when a menu item is selected. The Adjust control can then be used to change the parameters associated with the menu item. When the desired parameter has been selected, the operator presses the Select key to enter the new values, the menu parameters are automatically stored and the menu returns to scrolling mode.

The Prev Menu key is used to return to scrolling mode without saving any changes made to a menu item. When this key is used, changes made to the selected menu item are discarded rather than stored as described for the Select key above

## Input Setup Menu—Standard

INPUT SETUP	#
ACTIVE	PREVIEW
MENU MODE	STANDARD
RIGHT EDGE	
LEFT EDGE	
TOP EDGE	
BOTTOM EDGE	
CONTRAST	100.0%
BRIGHTNESS	100.0%
INPUT TYPE	S-VIDEO
LETTERBOX	OFF
COLOR BAL	>>
PROCESSING	>>
UNDO CHANGES	
RESET CONFIG	
SAVE FN #	
SAVE AS	>>

### **Active Input**

The first line in the menu is used to select whether adjustments will be made for the video assigned to the Main or Preview outputs. The default selection is Preview as this allows adjustments to be made during a show without impacting the Main display. The number of the input channel corresponding to the selected active input is indicated at the top right corner of the menu.

### **Menu Mode**

There are two menu modes, Standard and Advanced. The Standard menus are sufficient for most users. The Advanced menus provide controls for 1:1 pixel sampling features to optimize Image quality for critical applications.

### **Image Size and Position Adjustments**

The Right Edge, Left Edge, Top Edge, and Bottom Edge parameters allow the operator to adjust the size and position of the image. To perform adjustments, scroll to the appropriate menu item with the Adjust control, select the menu item with the Select key, and then turn the Adjust control to adjust the position of the selected edge of the image while viewing the output screen. The menu will show '+' or '-' depending on which direction the Adjust control is being turned. Press Select again to accept the newly entered settings or PREV Menu to exit without accepting the changes that have been entered.

### **Contrast/Brightness**

The Contrast and Brightness controls allow the operator to adjust the overall contrast and brightness of the image. To perform adjustments, scroll to the appropriate menu item with the Adjust control, select the menu item with the Select key and then turn the Adjust control to perform adjustments while viewing the output screen. The adjustment range is 75.0% to 125.0%.

### **Input Type**

The Input Type menu item allows the operator to select settings optimized for a specific type of input video. Selection options are S-video, RGB, Beta 50, Beta 60, MII, EBU and Composite (NTSC/PAL). ScreenPro™ will attempt to determine the type of input video on the selected input channel and will initially choose the format. The Input Type menu allows the operator to override the selections in the event that an error is made (it is sometimes difficult to automatically distinguish between modes as input image content is unknown). To perform adjustments, scroll to the Input Type menu, select the menu item with the Select key and then turn the Adjust control to select the desired format while viewing the output screen. Press Select again to accept the newly entered settings or PREV Menu to exit without accepting the changes that have been entered.

### Letterbox Mode

This menu item is applicable to all NON-RGB sources as well as RGB HDTV type sources. For any of these video types, a selection of OFF or ON becomes available. When set to OFF the image will be allowed to fill the entire output raster. If ON is selected, the top and bottom of the output raster are cropped to a 16:9 Aspect Ratio. This feature is especially useful when used with Wide-Screen DVD sources. It will allow you to PIP this type of source without seeing the Black Bars at the top and bottom of the PIP.

### Color Balance

The Color Balance menu line is used to call up a submenu where color balance adjustments are performed. Scroll to the Color Balance submenu line and press the Select key to display the Color Balance submenu. The Color Balance menu corresponding to the current contents of the Input Type field (directly above this menu field) will be displayed. The Color Balance submenus are described in Chapter 3.

#### 1. Color Balance Submenus

There are 3 different types of Color Balance submenus as described below. Each submenu corresponds to a specific type of input video as selected in the Input Type field of the Input Setup menu.

#### 2. RGB Color Balance

This menu allows the operator to balance the colors on an RGB input source. Independent Contrast and Brightness adjustments are provided for each color channel. Parameters entered by the operator are saved as part of the input configuration file for the corresponding video input channel.

COLOR BALANCE RGB		
R	CONTRAST	0.0%
R	BRIGHT	0.0%
G	CONTRAST	0.0%
G	BRIGHT	0.0%
B	CONTRAST	0.0%
B	BRIGHT	0.0%
RESET ALL		

To perform adjustments, scroll to the desired menu line, select the menu item with the Select key and then turn the Adjust control to select the desired contrast or brightness level while viewing the output screen. Press Select to accept the newly entered settings or PREV Menu to exit without accepting the changes that have been entered. The adjustment for Brightness and Contrast is -25.0% to +25.0%.

The Reset Color menu item is used to reset all the fields in this sub menu to the default values (0%). To reset the color balance controls, scroll to the Reset Color menu line and select the menu item with the Select key.

#### 3. S-Video or Composite Video Color Balance

This menu allows the operator to balance the colors on an S-video or Composite (NTSC/PAL) input source. Independent Saturation and Hue adjustments are provided. Parameters entered by the operator are saved as part of the input configuration file for the corresponding video input channel.

```

ENC COLOR BALANCE
SATURATION      100.0%
HUE (DEGREES)   0°
R CONTRAST      0.0%
R BRIGHT        0.0%
G CONTRAST      0.0%
G BRIGHT        0.0%
B CONTRAST      0.0%
B BRIGHT        0.0%
RESET ALL

```

To perform adjustments, scroll to the desired menu line, select the menu item with the Select key and then turn the Adjust control to select the desired saturation or hue level while viewing the output screen. Press Select to accept the newly entered settings or PREV Menu to exit without accepting the changes that have been entered. The adjustment range for saturation is 75.0% to 125.0%. Hue is adjustable in 1 degree increments from 0 to 360 degrees.

Red, Green and Blue Contrast and Brightness adjustments range from -25.0% to 25.0% in 0.1% increments.

The Reset Color menu item is used to reset all the fields in this sub menu to the default values. To reset the color balance controls, scroll to the Reset Color menu line and select the menu item with the Select key. The saturation parameter will be reset to 100.0% and the HUE field will be reset to 0 degrees.

**4. Beta 50, Beta 60, MII, and EBU Color Balance**

This menu allows the operator to adjust saturation on Beta 50, Beta 60, MII, and EBU input sources. Parameters entered by the operator are saved as part of the input configuration file for the corresponding video input channel.

```

BETA COLOR BALANCE
SATURATION      100.0%
R CONTRAST      0.0%
R BRIGHT        0.0%
G CONTRAST      0.0%
G BRIGHT        0.0%
B CONTRAST      0.0%
B BRIGHT        0.0%
RESET ALL

```

To perform adjustments, scroll to the Saturation menu line, select the menu item with the Select key and then turn the Adjust control to select the desired saturation level while viewing the output screen. Press Select to accept the newly entered settings or PREV Menu to exit without accepting the changes that have been entered. The adjustment range for saturation is 75.0% to 125.0%. Red, Green and Blue Contrast and Brightness adjustments range from -25.0% to 25.0% in 0.1% increments.

The Reset Color menu item is used to reset all the fields in this sub menu to the default values. To reset the saturation controls, scroll to the Reset Color menu line and select the menu item with the Select key. The saturation parameter will be reset to 100.0%.

## Processing

The Processing menu line is used to call up a submenu to control input sync selection, DC restoration and de-interlacer functions. Scroll to the Processing menu line and press the Select key to display the Processing submenu. The Processing submenu is described in Chapter 3.

### 1. Processing Submenu

The Processing menu line is used to call up a submenu. Scroll to the Processing menu line and press the Select key to display the Processing submenu.

PROCESSING	
SYNC SELECT	AUTO
DC RESTORE	PRCH
DE-INTERLACER	OFF
3:2 SEQ DET	DIS
VID BW	FULL
VID PEAKING	MIN
PRE-PIPPED	NO

### 2. Sync Select

The Sync Select menu item allows the user to select one of four different modes (Auto, H/V, Comp or SOG). In Auto Mode, the unit will examine the incoming sync signals and automatically select the active sync source. Auto is the normal default setting. The user can select H/V (separate H and V sync), Comp (separate Composite sync), or SOG (Sync-On-Green) modes to override the automatic sync selection. This is sometimes desirable if the input signals are noisy.

### 3. DC Restore

The DC Restore menu item allows the user to select one of three DC Restoration modes (PRCH, PDLY or SYNC). The default mode is DC Restoration to the back porch of the incoming video signal (PRCH). The PDLY Mode is used when a tri-level sync comes in on the input, such as an HDTV signal. The SYNC Mode selects DE Restoration to the sync interval and may be useful for videos without a back porch interval.

### 4. De-Interlacer

This menu item is applicable only for NTSC or PAL input video. The De-Interlacer should be on for optimal performance with full-motion video. The De-Interlacer can be disabled by selecting the Off mode.

### 5. 3.2 Seq Detect

This menu item is applicable only for standard video (component, s-video, composite) video inputs. The default mode is off. The 3:2 Sequence Detect feature should be turned on to process video derived from film source material.

### 6. Video Bandwidth

This menu item is applicable only for S-Video and Composite video inputs. The default mode is Full. The Reduced setting can be used to soften the image by reducing horizontal bandwidth.

### 7. Video Peaking

This menu item is applicable only for S-Video and Composite video inputs. The default mode is minimal. Increased Video Peaking can be obtained by selecting the Increased or Maximum settings. Reduced peaking is obtained by selecting the Minimum setting.

## 8. PRE-PIPPED?

This menu asks the question, is the source Pre-Pipped (or Pre-Processed). In other words, is the source coming from the output of another scaling device. If it is and if the other device is locked to the output timing of the ScreenPro, then this option, when set to "YES" will reduce the processing delay through the ScreenPro. This option is only applicable for RGB type inputs.

### **Undo Changes**

The Undo Changes menu item allows the user to undo all changes made since entering the Input Setup Menu. Scroll to the Undo Changes menu line and press the Select key to undo all changes and return to the Main menu.

### **Reset Configuration**

The Reset Configuration menu item is used to force ScreenPro™ to ignore Input Setup configuration information previously entered by the user. When this function is activated the unit will perform an analysis of the input video to derive and enter new input video default values. To activate this function scroll to the Reset Configurations menu line and press the Select key.

### **Save**

This menu item provides quick one-button update operation. The input configuration file number (FN#) and file name associated with the source selected for calibration is shown on the menu line. To update the selected file, simply scroll down to the SAVE menu item and press the Select key. The contents of the selected input configuration file will be updated to reflect parameters entered by the operator. Note that if no file has been entered, default file number and name data will be assigned.

### **Save As**

The Save As menu item saves the input setup parameters as a configuration file, which is then automatically assigned to the source used for the input setup process. The configuration file is automatically recalled each time the source is selected.

Note: The function of the Save As command is similar to the Save command, however, the Save As command allows the user to specify a file number and file name rather than updating the input configuration file currently associated with the source selected for calibration.

### **Save As Submenu**

The Save As menu line is used to save the input setup parameters as a configuration file. The configuration file being stored is automatically associated with the source used for the input setup process and recalled each time that source is selected. Scroll to the Save As menu line and press the Select key to display the Save Input File submenu illustrated below.

```
SAVE INPUT FILE
FILE NUMBER      ##
FILE NAME        #####
SAVE
```

The next available file number is automatically shown on the first line of the SAVE INPUT FILE menu. You can use this file number to create a new file or assign another number ( $1 \leq \#\# \leq 64$ ). The third line in the menu allows you to assign an eight-character file name to the file. Use the Select and Adjust controls to select characters to create the desired file name. Entry of a file name is optional. When the file number and name have been entered, select SAVE to save the configuration. The file is saved and automatically assigned to the source used for the input setup process.

## Input Setup Menu, Advanced Mode

When the Input Setup key is pressed and the Advanced Menu Mode is selected. The Input Setup Menu will appear as illustrated below. Menu items that differ from the standard Input Setup Menu are in bold print.

The Advanced Input Setup Menu is intended for use by experienced operators only. This menu allows the user to configure the unit for 1:1 Pixel Sampling to provide the highest possible image quality. Please note that while 1:1 Pixel Sampling provides optimal image quality when properly adjusted, improper adjustment is likely to produce an image considerably inferior to that is obtained with the Standard Input Setup Menu.

INPUT SETUP	#
ACTIVE PREVIEW	
MENU MODE	<b>ADVANCED</b>
<b>AUTO CONFIG</b>	
<b>H TOTAL</b>	<b>1750</b>
<b>PHASE MAIN</b>	<b>0</b>
<b>PHASE PREVIEW</b>	<b>0</b>
<b>POSITION (R)</b>	<b>40</b>
<b>WIDTH (L)</b>	<b>1327</b>
TOP EDGE	
BOTTOM EDGE	
CONTRAST	100.0%
BRIGHTNESS	100.0%
INPUT TYPE	S-VIDEO
LETTERBOX	OFF
COLOR BAL	>>
PROCESSING	>>
UNDO CHANGES	
RESET CONFIG	
SAVE FN #	
SAVE AS	>>

### 1:1 Sampling Overview

In order to scale an image it must first be digitized. This is the process of changing the analog graphics signals (Red, Green, and Blue for example) into pixels stored in the ScreenPro's™ image memory. The default mode of the ScreenPro™ is to over sample the input image producing more samples than there are in the original source material. The over sampled image is then scaled to the final output resolution.

An approach called 1:1 Sampling produces a superior image by sampling the analog graphics signals at exactly the same rate as that of the original source. This allows the image to be re-constructed with the reduced digitizing artifacts. This 1:1 Sampling approach requires very accurate settings and even a small sampling error causes noise on the output image. Both the sample clock frequency and phase must be correct to obtain a properly sampled image. ScreenPro™ incorporates automatic adjustments in the 1:1 Sampling mode.

### 1:1 Sampling Operation

To automatically set-up for 1:1 Pixel Sampling the input image should have non-black data at the edges and have some amount of text or other graphics. The standard Windows GUI is a good example. With an appropriate image displayed on the Preview Monitor, scroll to the Auto Config menu item and press Select. In a couple of seconds, the image should return properly adjusted.

The sample clock phase can be fine tuned by adjusting either the Phase Preview or Phase Main adjustments depending on which output you are calibrating. The functions of the menu items that are unique to Advanced Mode operation are described below.

### ***Auto Config***

When the Auto Config menu item is activated, the unit examines the incoming video and automatically configures the system for 1:1 pixel sampling. Parameters in the H TOTAL, PHAS MAIN, PHASE PREVIEW, POSITION (R), and WIDTH (L) menu fields are calculated and loaded as part of the Auto Config process. To activate Auto Config mode, scroll to the Auto Config menu and press select.

### ***H Total***

This menu field displays the total number of pixel clock periods during a horizontal line. The parameter is automatically loaded when the Auto Config process is complete. Manual adjustments can be made by scrolling to the H total menu item, pressing select and making adjustments with the Adjust Control.

### ***Phase Main***

This menu field displays a number between –16 and +15 which represents phase adjustment for the sample clock on the Main output. Phase is adjustable to the nearest 1/32 of a clock period. This parameter is automatically loaded when the Auto Config process is complete. Manual adjustments can be made by scrolling to the Phase Main menu item, pressing Select and making adjustments with the Adjust Control.

This menu field displays a number between –16 and +15 which represents phase adjustment for the sample clock on the Preview output. Phase is adjustable to the nearest 1/32 of a clock period. This parameter is automatically loaded when the Auto Config process is complete. Manual adjustments can be made by scrolling to the Phase Preview menu item, pressing Select and making adjustments with the Adjust Control.

### ***Position (R)***

This menu field displays the number of clock intervals assigned to the horizontal from porch. The parameter is automatically loaded when the Auto Config process is complete. Manual adjustments can be made by scrolling to the Position (R) menu item, pressing Select and making adjustment with Adjust Control. Adjustments should be made to move the right edge of the image to the desired location.

### ***Width (L)***

This menu field displays the number of clock intervals assigned to the horizontal active area. The parameter is automatically loaded when the Auto Config process is complete. Manual adjustments can be made by scrolling to the Width (L) menu item, pressing Select and making adjustment with Adjust Control. Adjustments should be made to move the left edge of the image to the desired location.

## Output Setup Menu

The Output Setup Menu allows the operator to select the desired output format as well as to control the output of the internal test pattern generator.

```
OUTPUT SETUP
FORMAT          1024x768
FRAME RATE      XX.XXHZ
SYNC PREVIEW    -H-V
SYNC MAIN1      -H-V
SYNC MAIN2      -H-V
TEST PAT MODE    OFF
TEST PAT        HRAMP
RASTER BOX      OFF
DISPLAY LOCK    OFF
```

### Output Format

The Output Format menu item allows the user to select an output format that matches the native resolution of the projection device in order to optimize image quality. To perform adjustments, scroll to the Format menu line, select the menu item with the Select key and then turn the Adjust control to select the desired output format. The available output formats are; VGA (640x480), SVGA (800x600), XGA (1024x768), XGA[2] (1024x768) (Supporting Samsung®'s SyncMaster™ 151 series LCD monitors), SXGA (1280x1024), SXGA[2] (Supporting Hitachi® LCD monitors) as well as the following plasma display formats: 1280 x 720, 1280 x 768, 1280 x 960, 1365 x 768, 1365 x 1024,. Press Select to accept the newly entered settings or PREV Menu to exit without accepting the changes that have been entered. Please note that selections for this menu item do not become active until the Select key is depressed. This differs from the operation of other menus where changes occur as soon as parameters are changed.

### Frame Rate

The Frame Rate menu item allows the user to select the desired output frame rate. To perform adjustments scroll to the Frame Rate menu line, select the menu item with the Select Key and then turn the Adjust control to select the desired output frame rate (50Hz, 59.94Hz, 60Hz or 75Hz). Please note that the 60Hz option is only available when the Output Format is set to 1280 x 768. The 1280 x 768 @ 60Hz option is useful for certain Pioneer® plasma displays.

Note: To eliminate the potential for frame rate artifacts it is recommended that the output frame rate be set to match the input frame rate for video sources (59.94 Hz for NTSC, 50 Hz or 75Hz for PAL). When the frame rate is set to 75Hz, the following resolutions cannot be selected: SXGA, SXGA[2], 1280x960 and 1365x1024

### Sync

The Sync menu items allow the user to independently select the desired output sync format for the Preview and two Main outputs. To perform adjustments, scroll to the appropriate Sync menu line (Preview, Main1 or Main2), select the menu item with the Select key and then turn the Adjust control to select the desired output sync format. The available output formats are +H+V (active high Horizontal Sync, active high Vertical Sync), +H-V (active high Horizontal Sync, active low Vertical Sync), -H+V (active low Horizontal Sync, active high Vertical Sync), -H-V (active low Horizontal Sync, active low Vertical Sync) -C (active low Composite Sync). Press Select to accept the newly entered settings or Prev Menu to exit without accepting the changes that have been entered.

### Test Pattern Mode

The Test Pat Mode menu item selects the option of turning the test pattern ON or OFF. When changing the mode from its current state, allow a few seconds for the new state to take effect. The time delay is necessary now due to an FPGA device that is being reprogrammed whenever the test patterns are turned ON or OFF.

### Test Pattern

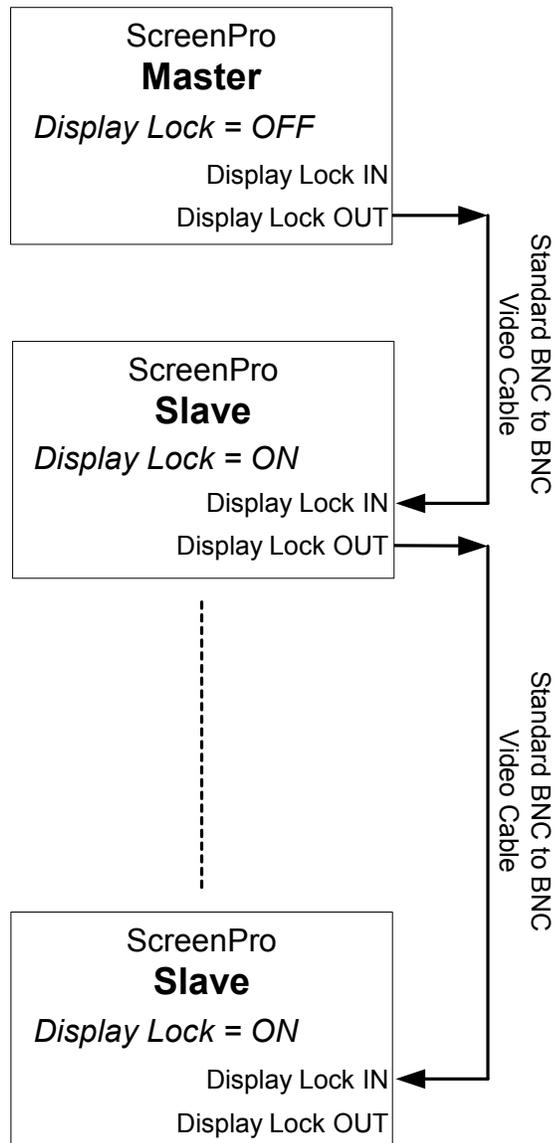
The Test Pattern menu item allows the user to select a test pattern for display. To select a test pattern, scroll to the Test Pattern menu line, select the menu item with the Select key and then turn the Adjust control to select the desired test pattern. The available test patterns include: Horizontal Ramp, Horizontal Bars, Burst, Color Bars, Black, and White Cross Hatch. Press Select to output the selected test pattern.

### **Raster Box**

The Raster Box menu item allows the user to overlay a border on the Main or Preview output images. To control the display of the Raster Box, scroll to the Raster Box menu line, select the menu item with the Select key and then turn the Adjust control to select the desired output (Preview, Main, Both, or Off). The Off selection is used to disable the display of the Raster Box. The raster box can be displayed on the test patterns or over live data.

### **Display Lock**

Display Lock is an optional feature that allows multiple ScreenPro units to have their outputs synchronously locked together. This is achieved by having one ScreenPro act as a master timing unit. The other ScreenPros are slaved to the master unit and lock their output timing to the master unit. See the diagram below for help in connecting units together.



**Display Lock Connection Diagram**

After connecting the units together, go to the Output menu on each unit. Make sure the **FORMAT** and **FRAME RATE** fields are the same for each system. Finally, go to the **DISPLAY LOCK** field and make sure the Master unit is set to

OFF and the Slave units are set to ON. After a few seconds, the output screens will stabilize and the systems will be locked together.

When this feature is not present in the unit, the DISPLAY LOCK field will show N/A. If you wish to upgrade your unit with this Display Lock feature, contact the factory for more information.

### ***Saving Output Configuration***

When exiting the Output Setup Menu, the Save Changes dialog box will be displayed if any changes were made to the output parameters.

Pressing Select (SEL) will save the output setup to memory. Pressing the PREV MENU will return the user to the previous menu.

```
SAVE CHANGES
TO OUTPUT SETUP?
  <Select>      = YES
  <Prev Menu>   = NO
```

### **Program Step Menu**

The Program Step menu allows the operator to review pre-programmed sequences of transitions. This permits an entire show to be scripted and controlled via the Program Advance and Program Reverse keys on the front panel. The operator can view each program step using the Program Step menu by activating PROG STEP Menu Select Key.

```
PROGRAM STEP
STEP NUMBER      1
SOURCE           1
TRANS           DSLV 1.0
```

#### ***Step Number***

The Step Number menu item allows the user to select the number of the program step to be viewed. To select a specific program step, scroll to the Step Number menu line, select the menu item with the Select key and then turn the Adjust control to select the desired step number (1-64).

#### ***Source***

This menu line is a read-only display showing the input source to be displayed after the selected transition takes place.

#### ***Trans***

This is a read-only display showing what transition is to be performed in the selected step. The transition type and the duration of the transition are shown.

## Effects Menu

The Effects Menu allows the user to adjust the effect duration for dissolve and wipe transitions as well as to select the type of wipe transition to be performed.

EFFECTS	
WIPE TYPE	RIGHT
EDGE ADJ	16 PIX
KEY THRESHOLD	5%
WIPE TIME	1.0
DISSOLVE TIME	1.0
PIP H SIZE	50%
PIP V SIZE	50%
PIP X POS	0%
PIP Y POS	0%

### ***Wipe Type***

To control the type of wipe transition select the Wipe Type menu item with the Select key and then turn the Adjust control to select the desired transition. The wipe types include left, right, top and bottom where the wipe sweeps in the direction indicated (a right wipe proceeds from left to right). Additional transitions include Curtain Open (CRTN OPN), Curtain Close (CRTN CLS), and Mosaic. Additional item to access PIP and Keying modes are as follows: PIP MODE, KEY DSLV, KEY CUT, KY RIGHT, KEY LEFT, KEY UP, KEY DOWN, KY C OPN (Curtain Open), KY C CLS (Curtain Close).

### ***Key Threshold***

To control the pixel luminance value threshold, select the KEY THRESHOLD menu item with the Select key and then turn the Adjust control to select the desired threshold between 0% and 100%. To get an idea of how the threshold affects the final mix, transition the key source over the background image before adjusting the threshold.

### ***Edge Adj***

To control the edge width of the transition, select the EDGE ADJ menu item with the Select key and then turn the Adjust control to select the desired edge width in pixels. The possible selections are 256, 128, 64, 32, 16, 8, and 4 pixels.

### ***Wipe Time***

To control the duration of the wipe transitions select the Wipe Time menu item with the Select key and then turn the Adjust control to select the desired transition time. The adjustment range is 0.0 to 5.0 seconds.

### ***Dissolve Time***

To control the duration of the dissolve transitions select the Dissolve Time menu item with the Select key and then turn the Adjust control to select the desired transition time. The adjustment range is 0.0 to 5.0 seconds.

### **PIP H Size / PIP V Size**

To control the Horizontal or Vertical Size of the PIP, select the PIP H SIZE or PIP V SIZE menu item and then turn the Adjust control to the size desired, between 1% and 100%. Please make note of the following when adjusting the Horizontal or Vertical size.

*The scaler is limited to a maximum 2:1 compression. Therefore, the size of a full PIP ("full" meaning the entire input image is displayed in the PIP) is limited by the following equations:*

$$\text{Min Horizontal Size (\% of output image)} = \text{InputHSamples} / (2 * \text{OutputHRes}) * 100$$

$$\text{Min Vertical Size (\% of output image)} = \text{InputVActive} / (2 * \text{OutputVRes}) * 100$$

*Note: InputHSamples may not be the same as input horizontal resolution due to oversampling.*

*Example:*

*PIP source is standard video 710x485.*

*Output is XGA 1024x768.*

$$\text{Min Horizontal Size (\%)} = 710 / (2 * 1024) * 100 = 34.67\%$$

$$\text{Min Vertical Size (\%)} = 485 / (2 * 768) * 100 = 31.58\%$$

*PIP sizes smaller than the calculated limits can still be used. However the right and bottom edges of the screen will be cropped.*

### **PIP X POS / PIP Y POS**

To control the Horizontal or Vertical Position of the PIP, select PIP X POS or PIP Y POS menu item and then turn the Adjust control to position desired, between 0% and 100%.

### **File Menu**

The File Menu allows the user to assign one of up to 64 input configuration files to each of the eight input sources. The input configuration file number and file name associated with each of the eight inputs are show in the menu as illustrated below.

FILE MENU		
IN 1	1	DVD1
IN 2	2	DVD2
IN 3	3	COMP1
IN 4	4	COMP2
IN 5	5	BETA1
IN 6	6	BETA2
IN 7	7	YUV1
IN 8	8	EMPTY
DELETE A FILE	>>	

### **IN1 – IN8**

To assign an input configuration file to a source, simply scroll down to the desired input source and press Select to select the menu item. Use the Adjust knob to select the desired input configuration file and then press Select again to complete the file association.

### **Delete A File**

To delete an input configuration file, scroll to the Delete A File menu item and press Select to enter the Delete A File submenu. Scroll down to the File and select the menu item. Use the Adjust knob and the Select key to choose the file to delete and then scroll down to delete and select the menu item to delete the selected file.

```
DELETE INPUT FILE
FILE          1  DVD1
DELETE
```

### **Miscellaneous Menu**

The Miscellaneous Menu has options for changing added user configurations.

```
SYSTEM SAVE          <+>
SERIAL MODE          RS-232
CONFIG SERIAL        >>
TECH SUPPORT         >>
BACKLIGHT            ON
SP+ EXT CONTROL      >>
EXT REMOTE CTRL      >>
FACTORY RESET        >>
```

### **System Save**

The System Save allows the user to save system parameters, which are restored upon power up. These parameters include the intensity of the display menu, configuration of the effects menu (effect type, duration, & PIP parameters) and the initial state of video source select inputs. On power up, these parameters will be recalled.

```
SAVE SYSTEM
PARAMETERS?
  <Select> = YES
  <Prev Menu> = NO
```

### **Config Serial**

Allows the user to change ECHO from ON/OFF. BAUD RATE can be adjusted from 1200, 9600, 19.2K and 38.4K. DATA BIT has the option of 7 or 8. STOP BIT can be changed between 0 and 1. PARITY supports NONE, EVEN or ODD. RESET will default the settings to Baud = 38.4, Parity = None, Data Bits = 8 and Parity = None.

### **RS-485 Menu**

```
RS-485 PORT MENU
ID                1
BAUD RATE        38.4K
DATA BIT         8
STOP BIT         1
PARITY           NONE
RESET RS-485    <+>
```

### **RS-232 Menu**

```
RS-232 PORT MENU
ECHO             ON
BAUD RATE        38.4K
DATA BIT         8
STOP BIT         1
PARITY           NONE
RESET RS-232    <+>
```

### **Tech Support Menu**

Displays the latest version of software and customer service numbers to contact in case of emergency.

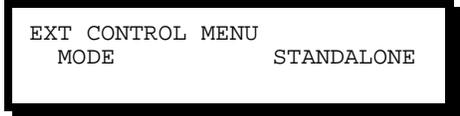
```
TECH SUPPORT MENU
SOFT VER        #.##
PHONE           866.FRI.SUPT
                866.374.7878
```

**Backlight Menu**

Allows the user to choose whether the display buttons are lighted or not.

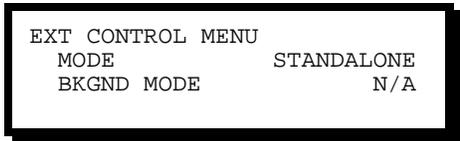
**SP+ Ext Control Menu**

Allows the user more flexibility when using a ScreenPro™ with a ScreenPro™ PLUS. User has the option between STANDALONE, SP+ EXT ID #2, SP+ EXT ID #3, SP+ EXT ID #4, SP+ EXT ID #5, SP+ EXT ID #6, SP+ EXT ID #7, or SP+ EXT ID #8.



**Ext Remote Control Menu**

Use this menu when using multiple ScreenPro™ units with an external controller. User has the option between STANDALONE, SPR EXT ID #1, SPR EXT ID #2, SPR EXT ID #3, SPR EXT ID #4, SPR EXT ID #5, SPR EXT ID #6, SPR EXT ID #7, or SPR EXT ID #8. The BKGND MODE field is reserved for future use and cannot be changed.



**Factory Reset**

To reset ScreenPro™ to factory default settings, depress and hold down the PROG key and DEL key and press the Select key. The front panel will display the following or follow submenu instructions:



After this process, ScreenPro™ is now reset to factory defaults.

### **Factory Reset Submenu**

```
DELETE ALL USER  
FILES AND RESET?  
<SELECT> = YES  
<PREV MENU> = NO
```

Pressing the Select key will perform a factory reset. Pressing Prev Menu key will return the user to the previous menu.

# CHAPTER FOUR

## Serial Command Syntax Spec's

What you will find in this chapter...

- *Serial Parameters*
- *RS-232/RS-485 Mode*
- *Download CFG/Upload CFG*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# Serial Command Syntax Specification

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## Serial Parameters

The following are the parameter settings for serial communication.

Baud Rate is 38.4.

Parity is NONE.

Stop Bit is 1.

Data Bit is 8.

Echo is ON or OFF. (Applies to RS232 mode only)

For RS-232/485 signal connections, refer to Chapter 2 – Installation.

## Protocol Mode Selection:

The ScreenPro™ will be able to support RS232 or RS485 serial protocols. This mode will be selectable by the serial command "SMODE" or via the SERIAL MODE menu item in the MISC Menu. When RS485 mode is selected an additional parameter will be available to set the device address. This number will be in the range of 1 to 32. This address ID will remain unchanged between system power cycles. The ID will default to 1 under the following conditions:

- A reset RS Ports is executed during a Factory System Reset.
- A software upgrade is installed

## RS232 Mode

The Graphics Board will respond with a '#' prompt when the command processor is ready for a command.

*The command syntax is shown below*

*cmd arg1 arg2 ... argn<CR>*

cmd	cmd is any valid Graphics Board command, typically 2 to 6 alphabetic (non numeric) characters.
arg	arg1, arg2, ... argn are required or optional parameters depending on the command used.
<CR>	carriage return (ASCII 13) terminates the command

A space (ASCII 32) must be inserted between the command and any arguments that follow. A space must also be inserted between all argument parameters except for the last argument in the chain.

All commands in RS232 mode **must** be terminated with a carriage return (ASCII 13). The carriage return will tell the command processor to begin execution of the command.

If the command is not recognized as a valid command, a '? 4' is returned for unknown command where '4' is a numeric error code for Command Not Available. If the command is recognized but the syntax is incomplete or required parameters are missing then '? 1' will be returned, where '1' is a numeric error code for Command Format Error. See below for a complete description of Error Codes.

Query commands will return the following:

=result

#

The '=' indicates a result from a command is following. The 'result' will follow directly after the '='. The value of the result will vary depending on the query command used. A new line will be generated and the prompt will indicate the system is ready for a new command.

## Error Codes

Command Format Error	1
Command Range Error	2
Command Execution Error	3
Command Not Available	4

## RS485 Mode

Single commands will be combined with a command delimiter start, device number, command separator and command delimiter end to form a command string as shown below:

### Single Command Format:

`cdsidcmd arg1 arg2 ..argncde`

### Multiple Command Format:

`cdsidcmd arg1 arg2 ..argn, idcmd arg1 arg2 ..argn, ..., idcmd arg1 arg2 ..argncde`

cds	cds is the command delimiter start character '*' (ASCII 42).
id	id is the device number in the range of 1 to 32. This can be a single character for values less than 10, no preceding zero is required.
cmd	cmd is any valid Graphics Board command, typically 2 to 6 characters in length
arg	arg1,2,n is any required or optional parameters need for the command
,	separates multiple commands
cde	cde is the command delimiter end character '!' (ASCII 33).

Example:

`12XYZ A 9,9PDQY 1234,31WX 200 98!`

The command string is started by the command delimiter start character '\*'. The first command follows directly after the cds. The example shows that device 12 should process the XYZ command with A and 9 as parameters. A coma (ASCII 44) separates the commands. Device 9 will process the PDQY command with a parameter of 1234 and device 31 will process the WX command with parameters of 200 and 98. The cde '!' follows directly after the last command to end the command string.

Commands received in the command string will not be processed until the cde character '!' is received. This format allows commands to be stack to the same or multiple devices and executed when the cde '!' character is received by all units. Any incomplete or unknown commands will be ignored. The maximum number of commands that can be stacked per unit is 16. Each unit will only stack those commands assigned to it, even though all units receive the same command string.

During queue processing, no input buffer processing is performed. Characters sent through the serial port during queue processing are still stored in the input buffer. If hardware flow control is not observed, it is important to guarantee that the input buffer limit is not exceeded before completion of the last command string. Note: The command queue does not support backspace characters.

To minimize bus traffic the command words will be kept as short as possible. The units will not respond with prompts or any command error conditions. Echo will be disabled when RS-485 mode is selected.

## Configuration Load and Save

These commands can be used to store or duplicate various ScreenPro™ configuration files (CFG's). The files can be loaded off the ScreenPro™ to a disk file on a PC.

### Download CFG

DL op nn sclr<CR>	
Parameters:	
	Op - [I P] Download Input library or Program Sequence Steps.
	nn Selects the index number of the configuration. When Op = I, this number can be zero for the current configuration or a number between 1 - 64 for a User Library Configuration. When Op = P, this number should always be 1.
	sclr - [A B M P] Used only when nn = 0, otherwise parameter not required.
Example:	DL I 12<CR> Downloads the input cfg number 12

This command will download a configuration file from the ScreenPro™ to the serial port. The download begins immediately after the command is initiated. The user should verify that the CFG is valid before downloading. The format of the CFG data is  
 <SOH><LIB><Index><Size><BINARY DATA><Sx>

*Where*

- <SOH> is StartOfHeader (ASCII Code: 0x01)
- <LIB> is the current library type, [I]nput or [P]rogram Sequence, 1 Character
- <Index> is the library index of this file, as a 1byte value.
- <Size> is the number of bytes in the binary data field, as an unsigned byte value (0 – 255).
- <BINARY DATA> is the configuration data. For input files, this is currently 204 bytes
- <Sx> this is an unsigned 8-bit number of the cumulative sum of each byte contained in binary data only.

**Current file size**

The current file size for the input Library is 204 bytes (1632 bits)

All files will have additional 4 bytes (32 bits) of header information added to them and 1 byte (8 bits) of checksum information at the end of the file.

**Upload CFG**

UL op nn s[8]<CR>	
Parameters:	
	<b>Op - [I P]</b> Upload Input library or Program Sequence Steps.
	<b>nn</b> Selects the index number of the configuration. When <b>Op = I</b> , the number can be between 1 – 64 for a User Library Configuration. Use 0 to load the file into the index it originated from. When <b>Op = P</b> , the number needs to be 1.
	<b>S[8]</b> Optional parameter to override the 8 character description of the file.
<b>Example:</b>	<b>UL I 3&lt;CR&gt;</b> Uploads file to the input cfg location 3.

This command will upload a configuration file from the serial port to the ScreenPro™. The upload begins once a valid SOH character is detected indicating the start of header. This allows multiple units to receive the UL command and then wait to receive the same CFG file from a PC or source ScreenPro™.

**Program Sequence File Description**

A program sequence file is an ASCII file that may contain from 7 to 448 bytes depending on the number of steps in the program sequence. Each step consists of seven bytes, one byte for the program step number (1 to 64), one byte for the source input number (1 to 9), one byte for edge adjust (0 to 6 as defined below), one byte for the program transition type (1 to 8 as defined below) and three bytes for the program transition time (0.0 to 5.0).

**Edge adjust values**

The edge adjust can have any of the following values.

- 0 256 pixels
- 1 128 pixels
- 2 64 pixels
- 3 32 pixels
- 4 16 pixels
- 5 8 pixels
- 6 4 pixels

### ***Transition type values***

The program transition type can have any of the following values.

1	Dissolve	Note: A Cut is a dissolve of 0.0 seconds
2	Wipe Right	
3	Wipe Left	
4	Wipe Down	
5	Wipe Up	
6	Curtain Open	
7	Curtain Close	
8	Mosaic	

*Example: 12410.029551.2 defines a two-sequence program file with a cut to source 2 at step 1 and a wipe-up transition of 1.2 seconds to source 9 (BLK key) with an edge width of 8 pixels at step 2.*

# CHAPTER FIVE

## Remote Commands

### What you will find in this chapter...

- *Remote Commands*
- *ScreenPro™ Command List/Description*
- *Terminal Remote Control*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# Remote Commands

All commands with *sclr* allow either Scaler [A] or Scaler [B] to be selected. If this parameter is not used, Scaler A is used as the default. Inquiry commands will accept the scaler as an optional parameter. The default is to return information for Scaler A. Additionally, the *sclr* parameter will accept [M]ain or [P]review as valid operands.

AOIWN n n n n sclr	Area of Interest Window: Right Edge, H Width, Bottom Edge, V Height sclr[A B M P]
CMDST	Last Command Status
COMCK op	Communication Check: op[D U] Download Upload
DEBUG	Debug Inquiry
DL op nn sclr	Download CFG: op[I P] nn[0-64] sclr[A B M P]
ECHO port n	Echo Enable/Disable: port[A B] n[0 1]
FREEZ n sclr	Freeze On/Off: n[0 1], OFF ON sclr[A B M P]
FSB n sclr	Force Scaler Black: n[0 1], OFF ON sclr[A B M P]
HELP i	Displays Command List: i[A-Z]
IBRT op nnn sclr	Input Brightness: op[C R G B] c[75 - 125]% RGB[-25 - 25]%
ICDEL nn	Input Configuration Delete: n[1-64]
ICFGN n?	Fetch File Name: n[0 - 64]
ICGTE n sclr	Input Clamp Gate: n[0-2], SYNC PRCH PDLY
ICNT op nnn sclr	Input Contrast: op[C R G B] c[75 - 125]% RGB[-25 - 25]%
ICPH op sclr nn	Input Clock Phase: op[A D M I] sclr[A B M P] n[0-31]
ICPHO op sclr nn	Input Clock Phase Offset: op[A D M I] sclr[A B M P] n[-16-16]
ICPL op sclr nnnn	Input Clocks Per Line: op[A D M I] sclr[A B M P] n[0-4096]
ICREC nn sclr	Input Configuration Recall: n[1-64] sclr[A B M P]
ICRST sclr	Input Configuration Reset: sclr[A B M P]
ICSAV nn s[8] sclr	Input Configuration Save: n[1-64] s[Name] sclr[A B M P]
ICSP n sclr	Input Colorspace: n[0 - 6], RGB B50 B60 MII EBU NTSC SVID sclr[A B M P]
ID nn	RS485 ID Number: n[1-32]
IHRE sclr?	Input Right Edge Inquiry: sclr[A B M P]
IHUE nnn sclr	Input Hue: n[0 - 360] degrees sclr[A B M P]
IHW sclr?	Input Horizontal Width Inquiry: sclr[A B M P]
IRSP op nnn sclr	Input Raster Size/Position: op[L R T B] n[-999 - 999]
ISAT nnn sclr	Input Saturation: n[50-200]% sclr[A B M P]
ISYNC n sclr	Input Sync: n[0 - 3], SOG COMP H/V AUTO sclr[A B M P]
KEY mode sclr thrsh	Luminance Keying: mode[K X], sclr[A B P M], thrsh[0..100]
KEY <SCLR?>	Luminance Keying Query: sclr[A B P M]
LBX n sclr	Letter Box Mode: n[0 - 1], OFF ON, sclr[A B M P]
LCK sclr?	Video Lock: sclr[A B M P]; Returns [0 1 2] No Video Locked Mismatch
LOADR	Puts graphics board into LOADR mode
MADB n sclr	Motion Adaptive De-interlacing Bypass: n[0 1] OFF ON sclr[A B M P]
MARKER n hpos	Places a green vertical line at the position indicated: n[0 1] OFF ON hpos
MSTAT sclr	Misc Status Info: FACTORY USE ONLY
OCRECF n <saveFlag>	Output Resolution: n[0 - 10] saveFlag[0 1]
OFRATE n <saveFlag>	Output Frame Rate: n[0 - 3] 59.94Hz 50Hz 75Hz 60Hz saveFlag[0 1]
OSAVE	Output Configuration Save to Flash Memory
OSYNC n op <saveFlag>	Output Sync.: n[1-5], -C +H+V +H-V -H+V -H-V op[B H P] saveFlag[0 1]
OTPM m typ inv bx gr	Output Test Pattern: m[0-3] typ[0-5] inv[0 1] bx[0-1] gr[0 1]
PIP en sclr hs hw vs vw	Picture In Picture: en[0,1] sclr[A B M P],hor.start[0..100], hor width [0..100], vert start[0..100], vert. Width[0..100]
PIP sclr ?	Picture In Picture Query: sclr[A B M P]
PFSD n sclr	Progressive Frame Sequence Det. (3-2 Pulldown):n[0 1] Disable Enable sclr[A B M P]
PHSCAL	OBSOLETE - Command no longer performs any function
RESET op	Reset Defaults: op[A F] All Factory
RTE n c	Switch Router Preview Input: n[1-9] 9=BLK c[M P] Main Preview
RUN	Run main code (cmd will execute only when in LOADER mode.)
SMODE n	Set Serial Mode: n[0 1] RS232 RS485
SSTAT	FACTORY USE ONLY
SSAVE	Save System Parameters
STAT ?	System Status Inquiry

STATS ?	Print System Status Log
STPRO	Setup ScreenPro™ (When connected to ScreenPro Plus™)
T nnn	T-Bar transition: nnn[0-255] where 0=Scaler B 255=scaler A
TBLS n	Terminal Backlight Status (Front Panel Switches): n[0 1] OFF ON
TCM n	Terminal Remote Control Mode: n[0 1] Folsom FSR
TDI n	Terminal Display Intensity: n[25 50 75 100]
TDL	SYSTEM USE ONLY
TER +/- nnn	Terminal Encoder Rate: n[-100 to 100]
TKC nn	Terminal Key Code: n[06 - 7F]
TLSR	Terminal LED Status
TPMODE n	Test Pattern Mode: n[0 1] Disable Enable
TRCF n nn	Terminal Recall Configuration File: n[1-8] n[1-64]
TRN dst dn n.n n	Transition: dst[A B M P] dn[1-8] n.n[0-5.0] n[0-6]
UL op nn str	Upload CFG: op[I P] nn[0-64] s[8]
VBW n sclr	Video Bandwidth: n[0 1] FULL REDUCED sclr[A B M P]
VER	Version Information
VPK n sclr	Video Peaking: n[0 1 2 3] MIN NOM INC MAX sclr[A B M P]
VRBOS n	Verbos Mode: n[0 1] Disable Enable
WIN n sclr n n n n	Window Zoom: n[0 1] Disable Enable, sclr[A B] n[0..100], n[0..100], n[0..100], n[0..100]

## ScreenPro™ Command List/Description

### ***Allow Input Size Adjust***

AOIWN

Description:

Allows sizing adjustments of the input source with respect to the output raster.

Parameters:

n – Right Edge  
n – Horizontal Width (Pixels)  
n – Bottom Edge  
n – Vertical Height (Lines)  
sclr – Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

AOIWN A? : Returns for Scaler A: =n n n n n, (=Right Edge, Horizontal Width, Bottom Edge, Vertical Height, Clock Samples per Line).

### ***Command Status***

CMDST

Description:

Returns status of the last command that executed

Parameters:

None

Example:

CMDST? : 0 = Completed; 1 = Format Error; 2 = Range Error;  
3 = Execution Error; 4 = Command Not Available Error.

### ***Communication Verify***

COMCK

Description:

Allows a remote control system to verify communications between itself and the ScreenPro / ScreenPro Plus.

Parameters:

op – [D]ownload or [U]pload data  
n – Amount of data to upload or download. This is an optional parameter that defaults to 128 bytes.

Example:

COMCK U : After the terminating <CR>, the system waits for 128 bytes to be sent.

COMCK D : The system transmits 128 bytes to the remote controller.

### **Debug Mode Status**

DEBUG?

Description:

Returns the status of Debug Mode.

Parameters:

None

Example:

DEBUG? : 0 = Debug Mode Disabled; 1 = Debug Mode Enabled

### **Download Input File /Program Sequence Configuration**

DL

Description:

Download input file configurations or a Program Sequence from the ScreenPro.

Parameters:

op - Input configuration or Program Sequence; [I|P]  
nn - Index Number; [0-64]  
sclr - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

DL I 2 : Download input configuration at index 2.  
DL I 0 A : Download the current information loaded on Scaler A.  
DL P 1 : Download the stored program sequence steps.

### **Echo Command**

ECHO

Description:

Enable or Disable ECHO.

Parameters:

port - Com Port; [A|B] *Note: Com A = 25-pin Remote Port*  
n - Disable or Enable; [0|1]

Example:

ECHO A 0 : Disable ECHO on Com A.

### **Freeze Command**

FREEZ n sclr

Description:

Enable/Disable Freeze.

Parameters:

n - Freeze Enable/Disable; n[0|1], OFF|ON  
sclr - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

FREEZ 1 A: Enables freeze on the display on Scaler A  
FREEZ 0: disables freeze on the display on Scaler A.

### **Force Scaler Black**

FSB n sclr

Description:

Force Scaler Black.

Parameters:

n - Force Scaler Black Disable/Enable; n[0|1], OFF|ON  
sclr - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview  
color - Optional parameter; color[0|1], Black|White (Defaults to Black when not specified.)

Example:

FSB 1 A: Scaler A will show a black screen  
FSB 0 A: Scaler A will show the current input source.  
FSB 1 A 1: Scaler A will show a white screen

## **HELP**

Description:

Displays the list of available command on a terminal emulator.

Parameters:

i – Alphabetical Index [A – Z]; Optional Parameter

Example:

HELP?: Returns the command list.

HELP P?: Returns the entire command list starting with the first command that starts with “P”.

## **Input Brightness Value**

IBRT op nnn sclr

Description:

Adjusts the Input Brightness value.

Parameters:

**op** - Select Brightness Control;  
[C|R|G|B] Common, Red Offset, Green Offset, Blue Offset  
**nnn** - Brightness value; C Range 75 - 125%, RGB Range -25 - 25%  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

IBRT C 110.5 A: Adjusts the Input Brightness on Scaler A to be 110.5%.

IBRT R 10 M: Adjusts the Red Offset to 10% for the Input on Main.

## **Input Configuration Delete**

ICDEL nn

Description:

Deletes a specified Input Configuration.

Parameters:

**nn** - Input Configuration Index; n[1 - 64]

Example:

ICDEL 2: Deletes input configuration two.

## **Input Configuration File Name Query**

ICFGN n?

Description:

Fetch input configuration file name.

Parameters:

**n** - File number [1 – 64]

Example:

ICFGN 1: Returns the name associated with file number 1.

## **Input Clamp Gate Adjust**

ICGTE n sclr

Description:

Adjusts the Input Clamp Gate mode.

Parameters:

**n** - Clamp Gate Selection; SYNC|PRCH; 0|1|2  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Examples:

ICGTE 0 A: Adjusts the Input Clamp Gate on Scaler A to be SYNC

ICGTE 1 A: Adjusts the Input Clamp Gate on Scaler A to be PRCH

ICGTE 2 A: Adjusts the Input Clamp Gate on Scaler A to be PDLY

### **Input Contrast Adjust**

ICNT op nnn sclr

Description:

Adjusts the Input Contrast values.

Parameters:

**op** - Select Contrast Control;  
[C|R|G|B] Common, Red Offset, Green Offset, Blue Offset  
**nnn** - Contrast value, C Range 75 - 125%, RGB Range -25 - 25%  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

ICNT C 100.8 A: Adjusts the Common Input Contrast value as 100.8%.  
ICNT G 15: Adjusts the Green Contrast Offset to 15% on Scaler A.

### **Input Clock Phase Adjust**

ICPH op sclr nn

Description:

Adjust the Input Clock Phase.

Parameters:

**op** - [A|D|M|I] Automatic | Debug | Manual | Increment  
*Note: Debug Mode is for Factory Use Only*  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

**nn** - Phase Number [0 – 31] when **op** = **M**  
Number to Increment by when **op** = **I**

**nn** - File Number [0 – 64]

Example:

ICPH A P: Automatically adjust the Input Clock Phase on Preview.  
ICPH M M 12 0: Set Input Clock Phase on Main to 12 for the currently displayed input.  
ICPH M M 12 2: Set Input Clock Phase for File Number 2 to 12.  
ICPH I A 3: Increment the Input Clock Phase on Scaler A by 3.

### **Input Clock Phase Offset Adjust**

ICPHO op sclr nn

Description:

Adjust the Input Clock Phase Offset.

Parameters:

**op** - [A|D|M|I] Automatic | Debug | Manual | Increment  
*Note: Debug Mode is for Factory Use Only*  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

**nn** - Phase Offset Number [-16 – 15] when **op** = **M**  
Number to Increment by when **op** = **I**

**nn** - File Number [0 – 64]

Example:

ICPHO A P: Automatically adjust the Input Clock Phase Offset on Preview.  
ICPHO M M 12 0: Set Input Clock Phase Offset on Main to 12 for the currently displayed input.  
ICPHO M A 12 2: Set Input Clock Phase Offset for File Number 2 to 12. If the scaler A source displayed is derived from File Number 2, it will be updated as well.  
ICPHO I A 3: Increment the Input Clock Phase Offset on Scaler A by 3.

### ***Input Clock Per Line Adjust***

ICPL op sclr nnnn

Description:

Adjust the number of Input Clocks per Line.

Parameters:

**op** - [A|D|M|I] Automatic | Debug | Manual | Increment

*Note: Debug Mode is for Factory Use Only*

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

**nnnn** – Number of Clocks per Line [0 – 4096] when **op** = **M**  
Number to Increment by when **op** = **I**

Example:

ICPL A P: Automatically adjust the number of Input Clocks per line on Preview.

ICPL M M 1364: Set Input Clocks per Line on Main to 1364.

ICPL I A 4: Increment the number of Input Clocks per Line on Scaler A by 4.

### ***Input Configuration Recall***

ICREC nn sclr n

Description:

Recalls a stored Input Configuration.

Parameters:

**nn** - Input Configuration Index; n[1 - 64]

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

**n** - Router input to which the input signal is connected.

*Note: Router Input parameter only used on ScreenPro Plus.*

Example:

*(Assuming there is a saved Input Configuration in Index #1)*

ICREC 1 M: Loads the Input Configuration stored in Index #1 to the source on Main.

ICREC 1 A 2: Loads the Input Configuration stored in Index #1 on Scaler A. In this example the input signal is sourced on router input 2.

### ***Input Configuration Reset***

ICRST sclr

Description:

Resets the current input configuration of the scaler specified.

Parameters:

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

ICRST A: Reset the input configuration for Scaler A.

### ***Input Configuration Save***

ICSAV nn s[8] sclr

Description:

Saves an Input Configuration to a specified index.

Parameters:

**nn** - Input Configuration Index; n[1 - 64]  
**s[8]** - Input Configuration Name; s[Name] (Up to 8 characters, no spaces)  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

ICSAV 1 TEST A: Saves the input configuration currently on Scaler A to Index #1 with the label name TEST.

### ***Input Color Space Mode Adjust***

ICSP n sclr

Description:

Adjusts the Input Color Space mode.

Parameters:

**n** - Color Space Selection; [0 – 6] RGB|B50|B60|MII|EBU|NTSC|SVID  
If n = 254 or 255, then selection will increment or decrement through the list.  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

ICSP 0 A: Adjusts the Input Color Space on Scaler A to be RGB.

### ***System ID***

ID n

Description:

Set system ID for use under RS-485 protocol.

Parameters:

**n** - ID Number [1 – 32]

Example:

ID 3: Sets the unit ID to 3.

### ***Input Right Edge Inquiry***

IHRE sclr?

Description:

Input Right Edge Inquiry.

Parameters:

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

IHRE A?: Returns the pixel location of the Right Edge.

### ***Input Hue Adjustment Setting***

IHUE nnn sclr

Description:

Adjusts the Input Hue setting.  
(Only applicable if input is a **NON-RGB** source.)

Parameters:

**nnn** - Input Hue Selection; n[0 - 360]degrees  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

IHUE 20 A: Adjusts the Input Hue selection on Scaler A to be 20 degrees.

### ***Input Horizontal Width Inquiry***

IHW sclr?

Description:

Input Horizontal Width Inquiry.

Parameters:

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

IHW A?: Returns the total pixel width of the input on Scaler A.

### ***Input Raster Size/Position***

IRSP op nnn sclr

Description:

Adjusts the Input Raster Size/Position.

Parameters:

**op** - Select Raster Control; [L|R|T|B] Left, Right, Top, Bottom

**nnn** - Increment/Decrement value; [-999 – 999]

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

IRSP R 10 A: Increments the Right Input Raster Size/Position by 10 on Scaler A.

### ***Input Color Balance Saturation***

ISAT nnn sclr

Description:

Adjusts the Input Color Balance Saturation.

*(Only applicable if input is a **NON-RGB** source.)*

Parameters:

**nnn** - Input Saturation: n[50-200]%

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

ISAT 110.0 A: Adjusts the Input Color Balance to 110.0%.

### ***Input Sync Selection***

ISYNC n sclr

Description:

Adjusts the Input Sync selection.

Parameters:

**n** - n[0 – 3], SOG|CSYN|H/V|AUTO

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

ISYNC 0 A: Sets Scaler A to expect SOG on the input channel.

### **Keying Command**

KEY <MODE> <SCLR> <THRESHOLD>

MODE                    K' = Key Mode On, 'X' = Key Mode Off or 'W' is window mode for use with PIP (PIP command does this automatically).  
SCLR                    'A','B','P' or 'M'. 'P'/'M' stand for preview and main.  
THRESHOLD            0-100%.

Once the Key has been setup with the serial command, the TRN command can be used as usual to transition the Key onto the Main screen. Note that the Key command can also be used after the Key has been placed on Main to dynamically change the threshold.

### **Query of Key Command**

KEY <SCLR>?

SCLR                    'A','B','P' or 'M'. 'P'/'M' stand for preview and main.

Returns: =a nnn<sub>1</sub>%

Where, a =            'K' = Key Mode On, 'X' = Key Mode Off,  
                         'W' is window mode for use with PIP or  
                         'Z' is both Key and Windowing are ON

nnn<sub>1</sub> = THRESHOLD (Range 0% to 100%)

### **Video Lock Query**

LCK sclr?

Description:

Video Lock Inquiry Command.

Parameters:

**sclr** -    Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Returns: =0 for NOT LOCKED  
          =1 for LOCKED/MATCHED  
          =2 for LOCKED/MISMATCHED.

### **Letter Box Mode**

LBX n sclr

Description:

Turns Letter Box mode ON or OFF for any NON-RGB source or HDTV sources. When ON the input raster is defined to be 16:9.

Parameters:

**n** -        n[0|1], Disable or Enable

**sclr** -    Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

LBX 1 A: Enable Letter Box Mode on scaler A.

### **Loader Mode**

LOADR

Description:

Places unit into loader mode. This mode is used to perform field upgrades.

Parameters:

None.

### **Motion Adaptive De\_interlace Bypass**

MADB n sclr

Description:

Bypass the Motion Adaptive De-Interlacing feature. This will reduce delay thru the system. This feature is particularly effective when using live camera sources.

Parameters:

**n** - n[0|1], Disable or Enable

**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

MADB 0 A: Disable the Motion Adaptive De-Interlacing.

### **Marker Placement**

MARKER n hpos

Description:

Command will overlay a green vertical line (2 pixels wide) at the horizontal position indicated. The line will appear on either Preview or Program monitor based on the current Raster Box setting of PREVIEW, MAIN or BOTH. If the Raster Box is OFF, then the line will default to the Preview monitor.

Parameters:

**n** - n[0|1], Disable or Enable

**hpos** - 0 – Max Active Pixel based on Output resolution.

Example:

MARKER 1 320: Places a green vertical line at pixel position 320 on the monitor specified by the Raster Box setting.

MARKER 0: Disables the green vertical line.

### **Command: MSTAT**

Description:

FACTORY USE ONLY.

Parameters:

None.

### **Output Resolution Select**

**Command: OCRECF n <saveFlag>**

Description:

Select the Output Resolution to use.

Parameters:

**n** - Output Resolution: n[0 – 10];  
VGA|SVGA|XGA|720p|SXGA|1280x768|1365x768|1365x1024|1024x768 II|1280x1024 II|1280x960

**<saveFlag> - OPTIONAL PARAMETER**

0 = Do NOT Save selected output resolution to Flash memory

1 = Save selected output resolution to Flash memory (*Default when this parameter is not specified.*)

Example:

OCRECF 2: Select output format to be XGA.

OCRECF ?: Translates the query output to return [0 – 10].

Note:

*When the frame rate is 75Hz, the following resolutions cannot be selected:*

*SXGA, 1365x1024, 1280x1024 II and 1280x960*

*When the frame rate is 60Hz, only 1280x768 can be selected.*

### **Output Frame Rate Select**

**Command: OFRATE n <saveFlag>**

Description:

Select the Output Frame Rate to use.

Parameters:

**n** - Output Frame Rate: n[0 – 3], 59.94Hz | 50Hz | 75Hz | 60Hz

**<saveFlag> - OPTIONAL PARAMETER**

0 = Do NOT Save selected output frame rate to Flash memory

1 = Save selected output frame rate to Flash memory (*Default when this parameter is not specified.*)

Example:

OFRATE 0: Select output frame rate to be 59.94Hz.

### **Output Configuration Save Command**

**Command: OSAVE**

Description:

Save Output Resolution, Frame Rate and Sync Type to Flash memory.

Parameters:

None

Example:

OSAVE: Output parameters are saved to Flash memory.

### Output Sync Adjust

**Command: OSYNC n op <saveFlag>**

Description:

Adjusts the Output Sync type for any of the three outputs.

Parameters:

**n** - Output Sync: n[1-5], -C|+H+V|+H-V|-H+V|-H-V

**op** - Output connector to make the change on: [B|H|P], where  
B = BNC Output connector  
H = Main HD15 Output connector  
P = Preview HD15 Output connector

**<saveFlag>** - **OPTIONAL PARAMETER**

0 = Do NOT Save selected output sync to Flash memory

1 = Save selected output sync to Flash memory (*Default when this parameter is not specified.*)

Example:

OSYNC 3 H: Adjusts the Output Sync value to be +H-V on the Main HD15 connector.

### Output Test Pattern Enable (See *TPMODE* command to Enable or Disable Test Patterns)

**Command: OTPM m typ inv bx gr**

Description:

Use to select Test Pattern options.

Parameters:

**m** - Overlay Mode: m[0-3],  
OFF|ON (Main Only)|ON (Preview Only)|ON (Both Scalers)

This is the overlay mode for the Raster Box and Grid. The parameter is only applicable when *TPMODE* is DISABLED. When *TPMODE* is ENABLED, the test pattern selected will be shown on both Main and Preview. However, when *TPMODE* is enabled, you must still place a number in this location when sending the command.

**typ** - Test Pattern Type: typ[0-4] V Gray Ramp|H Gray Scale|Burst|Color Bars|Black

**inv** - This is currently not used: Place a 0 in this location when sending the command.

**bx** - Test Pattern Raster Box: bx[0-1] OFF|ON

**gr** - Test Pattern Grid: gr[0|1] OFF|ON (Only applicable when *TPMODE* is ENABLED.)

Example:

*TPMODE* 1: Enables the Test Pattern Generator  
OTPM 0 2 0 1 0: Burst Test Pattern is shown with the Raster Box ON.

*TPMODE* 0: Disables the Test Pattern Generator  
OTPM 3 0 0 1 0: Enable the Raster Box on both Main and Preview.

OTPM? Returns: =[TPMode], [TYP], [M], [INV], [BX], [GR]

### **PIP Command**

**Command:** PIP <ENA> <SCLR> <HSTART> <HWIDTH> <VSTART> <VWIDTH>

ENA	'1' is on, '0' is off.
SCLR	'A','B','P' or 'M'. 'P'/'M' stand for preview and main.
HSTART	Horizontal start position as a percentage of the output resolution in 1% steps. Range 0 to 100.
HWIDTH	Horizontal width as a percentage of the output resolution in 1% steps. Range 0 to 100.
VSTART	Vertical start position as a percentage of the output resolution in 1% steps. Range 0 to 100.
VWIDTH	Vertical width as a percentage of the output resolution in 1% steps. Range 0 to 100.

### **Query of PIP Command**

PIP <SCLR>?

SCLR = 'A','B','P' or 'M'. 'P'/'M' stand for preview and main.

**Returns:** =a nnn<sub>1</sub>% nnn<sub>2</sub>% nnn<sub>3</sub>% nnn<sub>4</sub>%

Where, a = 'K' = Key Mode On, 'X' = Key Mode Off or  
'W' is window mode for use with PIP

nnn<sub>1</sub> = HWIDTH (Range 0% to 100%)  
nnn<sub>2</sub> = VWIDTH (Range 0% to 100%)  
nnn<sub>3</sub> = HSTART (Range 0% to 100%)  
nnn<sub>4</sub> = VSTART (Range 0% to 100%)

### **Progressive Frame Sequence 3:2 Select**

**Command:** PFSD n sclr

Description:

Progressive Frame Sequence Detection. This command will allow the detection of 3-2 pulldown to be enabled or disabled.

Parameters:

**n** - n[0|1], Disable or Enable  
**sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

PFSD 0 A: Disable detection of 3-2 pulldown.

### **Phase Calibration Command**

**Command:** PHSCAL

Description:

This command is OBSOLETE. While the command remains, it performs no function.

### **Reset System Command**

**Command:** RESET op

Description:

Resets the system to factory defaults.

Parameters:

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

Example:

RESET A: Resets system to factory defaults and deletes all user input configuration files.  
RESET F: Resets system to factory defaults but leaves any user input configuration files intact.

### ***Router Preview Input Switch***

#### **Command: RTE n op**

Description: Switches the router preview input.

Parameters: **n** - Select source to route: n[1-9] where 9 = BLK  
**op** - Output to which the source is routed: op[M|P] Main | Preview

Example: RTE 4 P: Switches the Preview to router input 4.

### ***Serial Mode Select***

#### **Command: SMODE n**

Description: Use this command to select the serial mode.

Parameters: **n** - Select RS Mode; n[0|1] where 0 = RS-232 and 1 = RS-485

Example: SMODE 1 : Sets the ScreenPro for RS-485 Communication.

#### **Command: SSTAT?**

Description: FACTORY USE ONLY

Example: SSTAT A? : Returns a system status value.

#### **STAT?**

Description: FACTORY USE ONLY

Parameters: None

Example: STAT? : Returns a system status value.

### ***Save System Parameters***

#### **Command: SSAVE**

Description: This command will save all the ScreenPro's parameters to non-volatile memory.

Parameters: None.

Example: SSAVE: The ScreenPros's system parameters will be saved to non-volatile memory.

### ***System Status Display Log***

#### **Command: STATS?**

Description: Prints a System Status Log.

Parameters: None

Example: STATS? : Status log will be printed to the screen of a terminal emulator.

### **Setup ScreenPro to ScreenPro Plus**

#### **Command: STPRO**

Description:

Setup a ScreenPro for use with a ScreenPro Plus.

Parameters:

None

Example:

STPRO : System will set-up input source 1 on Main and input source 2 on Preview.

### **T-Bar Command**

#### **Command: T nnn**

Description:

T-Bar command for manual transitions. In order for this command to be activated, the system must be put into Manual Transition mode. This is done by executing the TRN command (see below) with a time of 9.0 seconds.

Parameters:

nnn - [0 – 255] where 0 = Scaler B, 255 = Scaler A

Example:

T 128 : Will display 50% of Scaler A and Scaler B on the Main Output display.

### **Terminal Backlighting Select**

#### **Command: TBLS n**

Description:

Enable or Disable the backlighting on the front panel switches.

Parameters:

n - [0|1] Disable | Enable

Example:

TBLS 0 : This will turn off the backlights on the front panel switches.

### **Terminal Remote Control Mode**

#### **Command: TCM n**

Description:

This command sets the Remote Control mode for the ScreenPro. Refer to the Terminal Remote Control section of this document for further information.

Parameters:

n - [0|1] Folsom/Vista | FSR

Example:

TCM 0 : This will place the system into the Folsom/Vista remote control mode.

### **Terminal Display Intensity**

#### **Command: TDI n**

Description:

Sets the display to the specified intensity. Intensity values are 100, 75, 50, or 25 representing a percentage of full intensity.

Parameters:

n - [25|50|75|100]

Example:

TDI 100 – Sets the display to full brightness.

#### **Command: TDL**

Description:

SYSTEM USE ONLY

Parameters:

None.

### **Terminal Front Panel Encoder Select**

**Command: TER nnn**

Description:

Allows a remote control unit to emulate the function of the encoder knob on the front panel.

Parameters:

**nnn** - [-100 - 100] Absolute value determines the speed at which the knob is rotating and must be greater than 2. Positive values indicate Counter-Clockwise motion. Negative values indicate Clockwise motion.

Example:

TER 4 : "Move" the knob in a Counter-Clockwise motion by a small amount.

### **Terminal Front Panel Switch Select**

**Command: TKC nn**

Description:

Allows a remote control unit to emulate the function of any switch on the front panel.

Parameters:

**nn** - [06 – 7F], Each switch has a unique hex code association. This number needs to be transmitted in ASCII format. See the table below.

SWITCH NAME	CODE
PROG ADV	1F
MISC	1E
FILE	1D
PROG STEP	1C
EFFECT	1B
INPUT SETUP	1A
OUTPUT SETUP	19
PRE MENU	18
PROG REV	17
DEL	16
INS	15
CUT	14
DSLVL	13
WIPE	12
FREEZE	11
BLK	10
8	0F
7	0E
6	0D
5	0C
4	0B
3	0A
2	09
1	08
UP ADJUST	07
DOWN ADJUST	06
SELECT	3F
PROG	5F
CLEAR PROGRAM	56
FACTORY RESET	76

Example:

TKC 12: Makes the system respond as if the WIPE key had been pressed.

### **Terminal LED String Status**

**Command: TLSR**

Description: Returns a 78 byte ASCII string indicating the status of the Front Panel LEDs.

Parameters: None.

Example: TLSR: Refer to the Terminal Remote Control section of this document for further information on the format of this string.

### **Test Pattern Mode**

**Command: TPMODE n (See the OTPM command in order to change the Test Pattern displayed)**

Description: The following command is used to Enable or Disable the Test Pattern Generator.

Parameters: **n** – Mode n[0|1] Disable or Enable

Example: TPMODE 1: Enables the Test Pattern Generator.  
TPMODE 0: Disables the Test Pattern Generator.

### **Terminal File Association Table Select**

**Command: TRCF n nn**

Description: Sets the File Association table.

Parameters: **n** - Input Source n[1 – 8]  
**nn** - File Number nn[1 – 64]

Example: TRCF 4 2: Sets up Input source 4 to use File 2.

### **Transition Preview to Main Command**

**Command: TRN dst dn n.n n**

Description: Use to transition Preview onto the Main output display.

Parameters:

<b>dst</b> -	Final Input; dst[A B M P]	<b>n</b> –	Transition Edge Width
<b>dn</b> -	Transition Numbers :	0 =	256 pixels
	1 = Dissolve	1 =	128 pixels
	2 = Wipe Right	2 =	64 pixels
	3 = Wipe Left	3 =	32 pixels
	4 = Wipe Up	4 =	16 pixels
	5 = Wipe Down	5 =	8 pixels
	6 = Curtain Open	6 =	4 pixels
	7 = Curtain Close		
	8 = Mosaic		
<b>n.n</b> -	Fade Rate in seconds; n[0 - 5.0, 9.0], where 9.0 = Manual Mode		

Example: TRN P 2 4.9 3: Transition Preview onto Main using transition # 2 (wipe right effect) with a fade rate of 4.9 seconds and a transition edge width of 32 pixels.  
TRN A 6 9.0 4: Place system into Manual transition mode. The T-Bar command (see above) will perform the transitions using the Curtain Open effect having an Edge Width of 16 pixels. The **dst** parameter is ignored when placing the system into manual mode. Executing a TRN command like that in the first example will take the system out of manual transition mode.

### **Upload Input File Configuration**

**Command: UL**

Description: Upload Input File configurations or a Program Sequence to the ScreenPro.

Parameters:

- op** - Input configuration; [I|P]
- nn** - Index Number; [0-64]
- s[8]**- Used to override description of file uploaded.

Example:

- UL I 2 : Upload input configuration to index 2.
- UL I 0 : Upload input configuration to the index it originated from.
- UL P 1 : Upload a Program Sequence configuration.

### **Video Bandwidth Adjust**

**Command: VBW**

Description: Video Bandwidth adjustment.

Parameters:

- n** - Bandwidth setting; n[0|1] FULL | REDUCED
- sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

VBW 0 P : Set the video bandwidth on Preview to Full.

### **Version Query**

**Command: VER?**

Description: This is a version query. The return format is **nn.nn.a** where:  
**nn** is a two digit software version  
**nn** is a two digit software version  
**a** is an alpha character

Parameters: None

Example: VER?: Will return =nn.nn.a to a terminal emulator.

### **Video Peaking Adjust**

**Command: VPK**

Description: Video Peaking adjustment.

Parameters:

- n** - Peaking setting; n[0|1|2|3] MIN | NOM | INC | MAX
- sclr** - Scaler [A|B|M|P]; Scaler A | Scaler B | Main | Preview

Example:

VPK 2 P : Set the video peaking on Preview to Increased.

### **Verbose Mode Select**

**Command: VRBOS n**

Description: Enables or Disables verbose mode for queries.

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

Example: VRBOS 1: Enable verbose mode.

### **Window Command**

**Command: WIN pipen sclr hcenter hwidth vcenter vwidth**

**Description:**

Similar to PIP command. Command used for zooming output video when the input video's horizontal width or vertical width is greater than 100.

**Parameters:**

pipen - [1/0] enable or disables PIP  
sclr - [A/B] scaler to apply this command  
hcenter - [-200..200] horizontal center of PIP  
hwidth - [0..400] horizontal width  
vcenter - [-200..200]vertical center  
vwidth - [0..400] vertical width

**Example:**

Example 1: WIN 1 A 0 50 0 50<cr> --> PIP enabled, apply to scaler A, 0 is center of PIP image, horizontal image at 50% of normal, 0 is center of PIP image, and vertical image at 50% of normal.

# Terminal Remote Control

This section contains information necessary to emulate the Front Panel via the Remote Control port on the back of the ScreenPro.

ScreenPro units support two remote control protocols. The first is the Folsom protocol. This protocol is intended to be used by remote controllers that wish to emulate key presses and knob turns. This is the default protocol and is compatible with both RS232 and RS485.

Second is the FSR protocol. This protocol is an extension of the Folsom protocol. It allows controllers to receive the "background" commands that are sent to the Front Panel in order to keep its LED's and Display updated whenever switches are pressed or the knob is turned. This protocol is **NOT** compatible with RS485.

## PROTOCOL SELECTION

### *Remote Control Mode <TCM type>*

**Description:** Issued by the Controller to set the Graphics board control protocol. "Type" is an integer that defines the protocol where 0 = Folsom (default) and 1 equals the FSR protocol described herein.

*Note: The Graphics board is still capable of receiving and responding to keystrokes on the front panel regardless of the protocol selected.*

**Example:** TCM 1 – Sets the ScreenPro unit to the FSR protocol.

## FRONT PANEL LED STATUS

### LED Status Request <TLSR >

**Description:** Issued by the Remote Controller to request that the Graphics board return the current LED status of the Front Panel. The Graphics board returns a 78-byte string that indicates the status of all LEDs. The first 26 bytes represent LED status defined as o,y,r,g,b (off, yellow, red, green, blink). The next 26 bytes represent one state for each LED to account for the case that the LEDs are blinking. Valid status is defined as o,y,r,g (off, yellow, red, green) and non-blinking LEDs are defaulted to o.

**Example:** TLSR may return "rgbooooooooooooooooooooooo" which informs the external device that the RUN ADV LED is red, the MISC LED is green, the FILE LED is blinking and all other LEDs are off. The strings "ooyoooooooooooooooooooooo" and "ooroooooooooooooooooooooo" are transmitted to indicate that the FILE LED is blinking alternatively yellow and red. See Table 1 for the switch number assignments.

If the FSR protocol mode is selected, then the following will be true. The response for the TLSR command should be TlSI and the current state of the LEDs. So it would be "TlSIrgbooooooooooooooooooooooo...". The Panja or Crestron programmer will probably want to use their own colors for the blink so only the first 26 bytes are necessary, not the entire 78.

NAME	SWITCH/LED
PROG ADV	1
MISC	2
FILE	3
PROG STEP	4
EFFECT	5
INPUT SETUP	6
OUTPUT SETUP	7
PRE MENU	8
PROG REV	9
DEL	10
INS	11
CUT	12
DSLVL	13
WIPE	14
FREEZE	15
BLK	16
8	17
7	18
6	19
5	20
4	21
3	22
2	23
1	24
SELECT	25
PROG	26

*Table 1: Switch Number Assignments*

## PROTOCOL INDEPENDENT COMMANDS

The following commands can be sent to the ScreenPro regardless of the protocol selected.

### **External Key Code <TKC Key Code>**

**Description:** Issued by the Controller to send the “keycode” (see Table 2) for the currently pressed key or key combination.

*Note: “Key Code” is a hexadecimal key code expressed in ASCII format.*

**Example:** TKC 13 – sends DSLV key depression.

NAME	SWITCH	KEY CODE
PROG ADV	1	1F
MISC	2	1E
FILE	3	1D
PROG STEP	4	1C
EFFECT	5	1B
INPUT SETUP	6	1A
OUTPUT SETUP	7	19
PRE MENU	8	18
PROG REV	9	17
DEL	10	16
INS	11	15
CUT	12	14
DSLVL	13	13
WIPE	14	12
FREEZE	15	11
BLK	16	10
8	17	0F
7	18	0E
6	19	0D
5	20	0C
4	21	0B
3	22	0A
2	23	09
1	24	08
UP ADJUST	NA	07
DOWN ADJUST	NA	06
SELECT	25	3F
PROG	26	5F
CLEAR PROGRAM	NA	56
FACTORY RESET	NA	76

*Table 2: Switch Key Code Assignments*

*Note: UP and DOWN Adjust can be used in place of the TER command described below.*

### **Terminal Encoder Rate <TER n [-100 to 100]>**

**Description:** Allows a remote control unit to emulate the function of the encoder knob on the front panel. Absolute value determines the speed at which the knob is rotating and must be greater than 3. Positive values indicate Counter-Clockwise motion. Negative values indicate Clockwise motion.

**Example:** TER -56 – Rotate the know in a clockwise direction at a medium rotation speed.

### **COMMANDS ISSUED BY THE GRAPHICS BOARD TO THE CONTROLLER**

The following commands will be issued out the remote control port when the FSR protocol is selected. While these commands are being issued out of the remote control port, they are also being sent to the Front Panel so that it maintains the proper status at all times. These commands **cannot** be sent into the ScreenPro in order to change the Front Panel status.

### **LED Blink <TLB led state1 state2 On/Off>**

**Description:** Blinks the LED selected by the parameter “led” between the two states indicated “state1” and “state2” if the on/off parameter is set to on (one). Blinking is disabled when the “on/off” parameter is set to zero. Note if “led” is set to zero, all of the LEDs will be activated.

Note: “state#” is defined as o,y,r,g (off, yellow, red, green).

**Example:** TLB 0 o r 1 – Blinks all of the LEDs between the off and red states.

### **LED Set <TLS number state AllOrOne>**

**Description:** LED “number” (see Table 1 above) is set to “state” (see note below). “AllOrOne” indicates whether to retain the state of the other LEDs (“a”) or to set all other leds off (“o”). Note: “state” is defined as o,y,r,g (off, yellow, red, green).

**Example:** TLS 14 r o – sets the wipe button’s led to red and turns all other led’s off.

### **LED Set All <TLSA state>**

**Description:** Sets all LEDs to “state”. Note: “state” is defined as o, y, r and g (off, yellow, red and green).

**Example:** TLSA y – Sets all led’s to yellow.

### **Display Clear <TDC>**

**Description:** Erase all characters from the display.

**Example:** TDC

### **Display Put Character <TDPC row column character>**

**Description:** Output “character” (ASCII) at display “row” and “column”.

**Example:** TDPC 0 0 ? – places a question mark at the upper left corner of the display.

*Note: Special display characters are specified with hexadecimal codes. Contact Folsom Research Inc. for a description of these special characters.*

### **Display Put String <TDPS row column string>**

**Description:** Output “string” at display “row” and “column”.

**Example:** TDPS 1 1 terminal initialize – places “terminal initialize” one character from the left edge on the second line of the display.

### **Display Stored String <TDSS offset row column>**

**Description:** Gets a string stored in memory at “offset” (see text file for string definitions and offset locations) and displays it starting at “row” and “column”.

**Example:** TDSS 243 2 0 – Places the string stored at offset 243 on line 3 of the display starting at the far left.

*Note: For further information regarding this command and obtaining a copy of the text file with string definitions and offset locations, contact Folsom Research Inc.*

### **Display Clear Region <TDCR row1 col1 row2 col2 >**

**Description:** Clears the display from position (row1, col1) to position (row2, col2).

**Example:** TDCR 0 0 1 0 – Clears the display from the first character in the first row to the first character in the second row.

### **Display Intensity <TDI intensity >**

**Description:** Sets the display to the specified intensity. Intensity values are 100, 75, 50, or 25 representing a percentage of full intensity.

**Example:** TDI 100 – Sets the display to full brightness.

Note: This command can be sent to the ScreenPro to change the Display Intensity.

### **Display on or off <TDS OnOff>**

**Description:** Set the display state to 0 or 1 (Off or On).

**Example:** TDS 0 - Turns the display off.

# CHAPTER SIX

## SPR-2000 Software Upgrade Instructions

### What you will find in this chapter...

- *Overview*
- *Preparing to Upgrade ScreenPro Unit*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# SPR-2000 Software Upgrade Instructions

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## **Overview**

The ScreenPro units built by Folsom Research, Inc. 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 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 on any high capacity disk or solid-state drive.

## **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-25 male connector on one end)
- \* SPR-2000 unit

## **Software Requirements**

- \* Window 95/98/NT/2000
- \* Flash File Loader
- \* SPR-2000 Software files

## **Connecting to Folsom Research**

Folsom Research's FTP site address is: [ftp.folsom.com](ftp://ftp.folsom.com)

Using a FTP client, logon to our site using "anonymous" for the user name and your email address as the password (ex. [john.doe@somecompany.com](mailto:john.doe@somecompany.com)).

If you are using a web browser to access our FTP site, point the browser to: <ftp://ftp.folsom.com>

## **Downloading Necessary Files**

SPR-2000 Software Files and Flash File Loader

Directory Location: [ftp.folsom.com/products/video/spr2000](ftp://ftp.folsom.com/products/video/spr2000)  
File to download: "ScreenPro\_Rev###.exe" where ### is the Revision Number.

## **Installing the Flash File Loader and ScreenPro Files**

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 " ScreenPro\_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 ScreenPro 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 ScreenPro Flash File Loader.

## **Preparing to Upgrade the Screen Pro Unit**

- 1) Plug the DB-25 male connector into the port labeled "Remote" on the back of the Screen Pro 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 Configuration Menu and select RS232 Setup.
- 4) In the RS232 Config->COM Port window, select the COM port the Screen Pro is attached to by selecting the COM#.
- 5) The ScreenPro defaults to a baud rate of 38.4K. The Baud Rate field (next to the communication lights) should reflect this.

#### ***Verifying Communications between the Computer and Screen Pro Unit***

- 1) In the loader program, click inside the Terminal Window.
- 2) A blinking cursor should appear in the upper left hand corner of the window.
- 3) Turn the Screen Pro unit ON and wait for it to boot.
- 4) Back at the Terminal window, the CTS and DCD status lights should be RED. Pressing the enter key a couple of times will allow the system prompt "#" to be displayed on the screen.
- 5) If the CTS and DCD status lights are GREEN then check the communication settings in the loader and verify the COM port is correct and the communication parameters match with what is displayed in the CONFIG SERIAL menu on the Screen Pro unit.
- 6) If any of the communication parameters are changed within the loader, it is recommended that the Screen Pro unit be powered down and the verification process started over.

#### ***Uploading Files to the Screen Pro Unit***

- 1) Once communications have been established and verified, click on the "Open script file to read and upload" button to open the file browse window.
- 2) Select the ldr\_pro.sld file and click open. At this point the loader will start to transfer the files to the ScreenPro system.
- 3) After several minutes, the loader utility will inform the user that the process is complete down at the bottom the loader window.
- 4) Once this is done, you must power down the Screen Pro unit and turn it back on for the software to take effect. You can also close the loader utility at this time.
- 5) Verify the new software is in the system by looking for the version number in the TECH SUPPORT menu.
- 6) Once you have verified the version number, it is recommended that a factory reset be performed by pressing the PROG, DEL and SEL keys together and releasing.

# CHAPTER SEVEN

## Folsom Research Information

What you will find in this chapter...

- *Warranty*
- *RMA Information*
- *Technical Support/General Contact Information*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# Folsom Research Information

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## **Folsom Research 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. 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. Folsom Research 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.

## **Folsom Research Contact Information**

### ***Sales Contact Information (Monday – Friday, 8 - 5 pm PST)***

Direct Sales Line: 916-859-2505  
Toll Free Line: 888-414-7226 or 888-414-SCAN  
E-mail: [sales@folsom.com](mailto:sales@folsom.com)

### ***Technical Support Information (24 Hour)***

Tech Line: 866-374-7878 or 866-FRI-SUPT  
E-mail: [support@folsom.com](mailto:support@folsom.com)

### ***General Company Information***

Folsom Research, Inc.  
11101-A 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](http://www.folsom.com)

### ***Folsom Research Europe***

Folsom Research BV:  
Chromiumweg 111  
3812 NM Amersfoort  
The Netherlands  
Tel: +31 33 4651555  
Fax: +31 33 4627500  
Email: [saleseurope@folsom.com](mailto:saleseurope@folsom.com)

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



## APPENDIX

- *Technical Specifications*

**Screen**PRO™  
HIGH RESOLUTION SEAMLESS SWITCHER

# Technical Specifications

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## Video Input

*Connectors: (40) BNC*

### *Router*

**Input Channels:** 8.

**Video Bandwidth:** 350 MHz.

**Input Sync Signals:** Sync-on-Video; Separate C or H, V.

**Connections:** BNC.

## Video Inputs

**High-Resolution Computer Video:** Supports conversion of RGB computer video with horizontal scan rates up to 100 KHz and resolutions up to 1600x1200. Brightness, Contrast, and Color Balance are also adjustable.

**Standard Video:** Accepts Component (RGB or YUV), S-Video (Y/C), and Composite in both NTSC and PAL formats. Adjustable Saturation for Component input and Hue and Saturation controls for S-Video and Composite.

**Synchronization:** The unit automatically locks to a selected input using separate H and V syncs or a separate Composite sync © with levels of 0.3 to 4 Volts P-P or Sync on Video (G/Y).

## Video Outputs

### **Connectors:**

Main Outputs: Two independently buffered outputs

- (1) RGBHV with an HD-15
- (1) RGBHV with five BNC connectors.

Preview Output: (1) RGBHV with an HD-15.

**Format:** User-selectable in the following formats:

VGA (640x480) SVGA (800x600)  
XGA (1024x768) SXGA(1280x1024)  
Plasma formats including:  
1280x720 1280x768  
1365x768 1365x1024

**Syncs:** User selectable H/V or C with selectable polarities.

**Frame Rate:** User selectable 50Hz, 59.94Hz, 60Hz and 75Hz. (75Hz is not available for SXGA, 1365x1024 1280x1024 II and 1280x960 resolutions. 60Hz is only available for 1280x768)

**Levels:** RGB 0.7 Volts P-P

**Sync:** TTL

## Mixing and Transition Effects

The unit supports seamless switching between sources, including the following transition effects: cut, dissolve and wipes. Transition time and directions are fully programmable.

## User Controls

**Source Selection:** (9) Illuminated keys support selection of the eight source videos or black screen.

**Transition Effects:** (3) Illuminated keys: wipe, dissolve, and cut.

**Program Keys:** (5) Illuminated keys support generation, storage, recall and editing of preprogrammed control sequences

**Freeze Key:** A single illuminated key used to freeze the image on the main output.

**Setup Controls:** A vacuum fluorescent display, control knob, and (8) keys provide a menu-based front panel interface to support all setup functions.

**Remote Control**

Reconfigurable RS-232/485 DB-25 port for real-time control.

**Physical**

**Height:** 5.25" (13.3 cm); **Width:** 17" (43.2 cm) or 19" (48.3 cm) with rack-mount option;

**Depth:** 13" (33 cm); **Weight:** 22 lbs (10 kg); **Shipping Weight:** 30 lbs (13.6 kg).

**Input Power**

85-264 VAC, 47-63 Hz, 175 W max.

**Environmental**

**Temperature:** 0-40 degrees C; **Humidity:** 0-95% noncondensing