



**INSTALLATION AND OPERATOR'S MANUAL**



**Model FC-0608  
ScreenPRO Multi-Screen Remote**

*Manual #26-0111200-00 / Revision E*

**RECORD OF CHANGES**

<b>REV #</b>	<b>DATE</b>	<b>ECO #</b>	<b>DESCRIPTION</b>	<b>Approved By</b>
A	05/31/2002		Release	J. Spotts
B	07/31/2002	894	Added descriptions for new keyboard layout	R. Pellicano
C	10/25/02	953	Clarifies descriptions of various items	R. Pellicano
D	5/27/03	1063	Updated Menu Flow Chart. Updated Protocol specification. Added Display Lock and Wide Screen Raster descriptions. Clarified various sections.	R. Pellicano
E	7/10/03	1099	Updated Menu Flow Chart. Updated Frame Rate and Output Resolution selection description.	R. Pellicano

*Manual # 26-0111200-00*

## Operators Safety Summary

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

### Do Not Remove Covers or Panels

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

### Power Source

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

### Grounding the Product

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

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

### Use the Proper Power Cord

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

### Use the Proper Fuse

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

### Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

## Terms In This Manual

### 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 2 A, for 230 V use 1 A.*

### WARNING

*When the Controller 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.*

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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.

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# CHAPTER ONE

## Introduction

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

- *About the ScreenPro Remote Controller*
- *Features*
- *Technical Description*

Model FC-0608  
ScreenPRO Multi-Screen Remote Controller

# Introduction

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## About the ScreenPRO Remote

The controller provides a professional production switcher user interface to the Folsom ScreenPro seamless graphics switchers. Equipped with easy to use menus, t-bar transition control and joystick for intuitive adjustments. Your ScreenPro will be easier to set-up and use than ever before. Specifically designed for live applications, the features you need are right at your fingertips.

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 Remote provides and offers the following features when interfaced with up to six ScreenPRO graphics switchers:

- Modular design supports up to six screens.
- Integrated user interface.
- Up to 8 universal inputs; accepts composite (NTSC and PAL), s-video, component, and computer sources.
- Requires no external decoders or line doublers.
- Automatically syncs to input videos with resolutions from 640x480 to 1600x1200.
- High-performance architecture supports seamless switching.
- (2) Program and (1) Preview output for each screen.
- Superior image quality.
- 17 transition effects including cuts, fades, dissolves, curtains, grids, and wipes with variable transition rates.
- Effect selection for single or multi-screen effects.
- 32 Presets
- Screen "grouping" allows simultaneous transitions on selected screens.
- File management between multiple ScreenPro seamless switchers
- T-bar for manual control of transitions.
- Joystick simplifies setup of inputs and outputs.
- Six test patterns for projector setup.
- Motion adaptive de-interlacing.
- User programmable output formats: VGA (640x480), SVGA (800x600), XGA (1024x768), 1024x768 II, SXGA (1280x1024), SXGA II (1280x1024), (1280x720), (1280x768), (1280x960), (1365x768), (1365x1024).
- Fully field programmable to support upgrades.
- PIP capability including enlarging a pip to fill multiple output screens.
- Luma Keying functionality.

## Technical Description

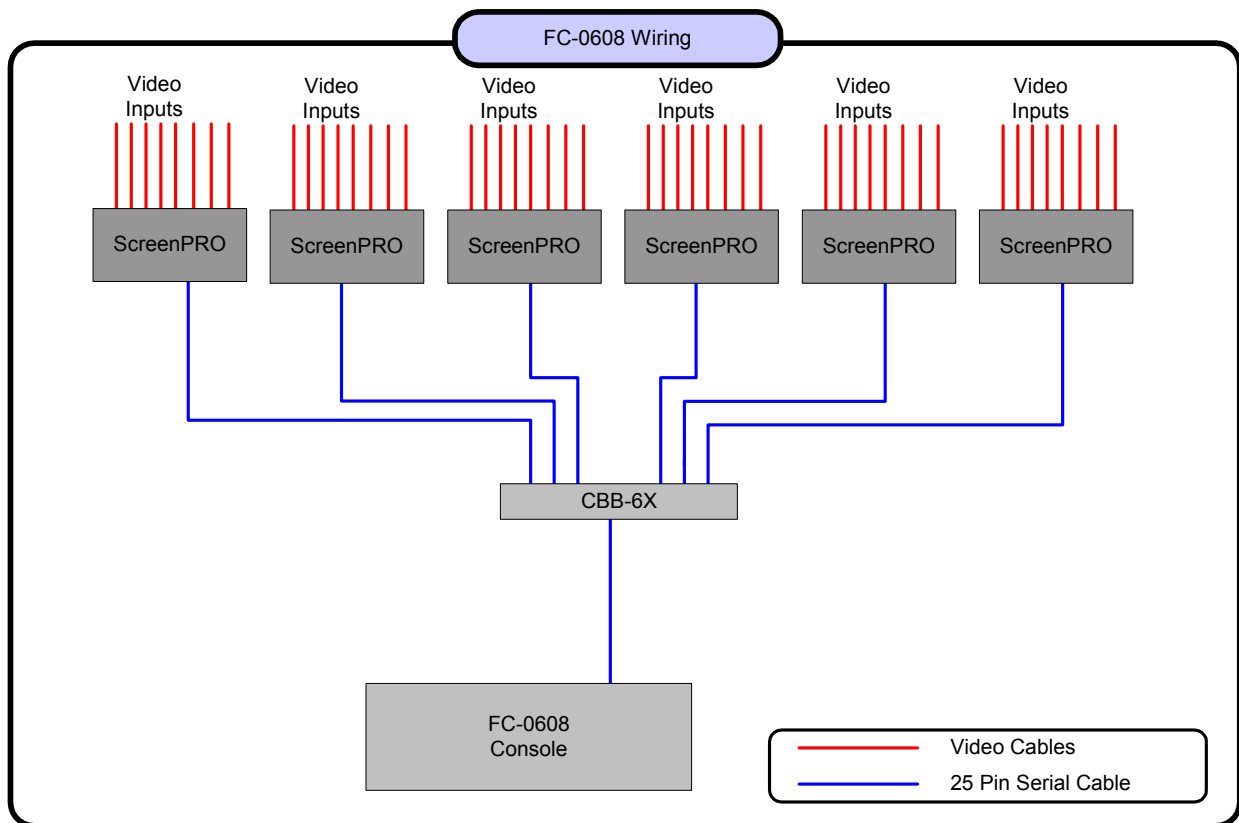
The Controller simplifies system interconnections, setup, and control while supporting advanced features for presentations with up to six screens. The multi-screen presentation system includes an intuitive user interface that automatically configures itself to the number of ScreenPRO units in the presentation.

The operator can select from up to 8 universal inputs that accept composite video, s-video, component video, and computer video sources (640x480 VGA to 1600x1200 UXGA). Sources are scaled to match the native resolution or "sweet spot" of the projection devices to ensure optimal image quality. Seventeen different transition effects including dissolves, wipes, cuts, and fade are supported. The duration of each transition effect is programmable. Each screen output supports two buffered program outputs (one five-wire BNC and one HD-15) and a preview output (HD-15).

While other systems require multiple control units for a multi-screen show, all Controller functions (including system setup) are supported via a single user interface. The user interface simplifies system setup, adjustment, and control. To perform a transition, the operator simply selects a preview source(s) and presses a key to simultaneously transition from one to six screens using any of the seventeen transition effects. Thirty-two preset memories allow complex control sequences to be "learned" for quick recall. Presets can include information about sources, effects, transition rates, PIP, and Keying. Since all presets are recalled to the preview monitors, the operator can view, edit, and recall presets without affecting the program outputs.

The Controller has been designed to work seamlessly with Folsom's ScreenPro product offerings. This allows customers to utilize Folsom's ScreenPro products for both single-screen and multi-screen applications.

**A functional connectivity diagram of the unit is provided below.**





# CHAPTER TWO

## Installation

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

- ❑ *Power Cord/Line Voltage Selection*
- ❑ *Video Input & Output Connections*
- ❑ *Connecting ScreenPro Units*

Model FC-0608  
ScreenPRO Multi-Screen Remote Controller

# Installation

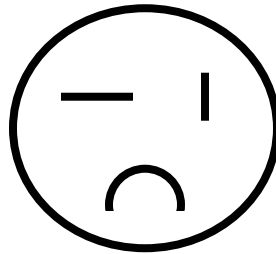
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## Power Cord/Line Voltage Selection

The ScreenPro Remote performs line Voltage Selection Automatically. No user controls are required for line voltage selection.



When the Controller 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**



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



Das Controller-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 8 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.

### 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
Source to ScreenPro		Format – NTSC/PAL (Typical Devices: Composite/PAL VCR)	
Y	G/Y	Source to ScreenPro	
C	B/CB	Composite/PAL	G/Y

## Video Output Connections – Program Outputs

Two independently buffered Program outputs (one five wire BNC connection and one HD-15) are provided for each output screen. 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. 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 the V signal from the ScreenPro to the correspondingly labeled connector on the output device.

## Preview Output

One Preview output (on an HD-15 connector) is provided for each output screen. The Preview outputs are provided to permit the operator to view the next source video to be displayed prior to initiating a transition. The Preview outputs provide RGB video signals. Connect the outputs 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 the V signal from the ScreenPro to the correspondingly labeled connector on the output device.

## ScreenPro and Controller Connections

For single screen applications, connect the Remote Port (DB-25 connector on the rear of the Controller) to the ScreenPRO's REMOTE Connector located on the rear panel using the 25 ft. 25-pin straight-thru serial provided with the controller.

For multi-screen applications, connect the Remote Port (DB-25 connector on the rear of the Controller) to the Communication Breakout Box (CBB-6X supplied with the Controller) using the 25 ft. 25-pin straight-thru serial cable provided with the controller. Connect each ScreenPRO's REMOTE port to the Breakout Box using a DB-25 male to DB-25 male 25-pin straight-thru serial interface cable. Any ScreenPRO can be connected to any available port on the Breakout Box.

Additional interface cables are available from Folsom Research. Order FRI (P/N 14-9760031-00).



# CHAPTER THREE

## Operation

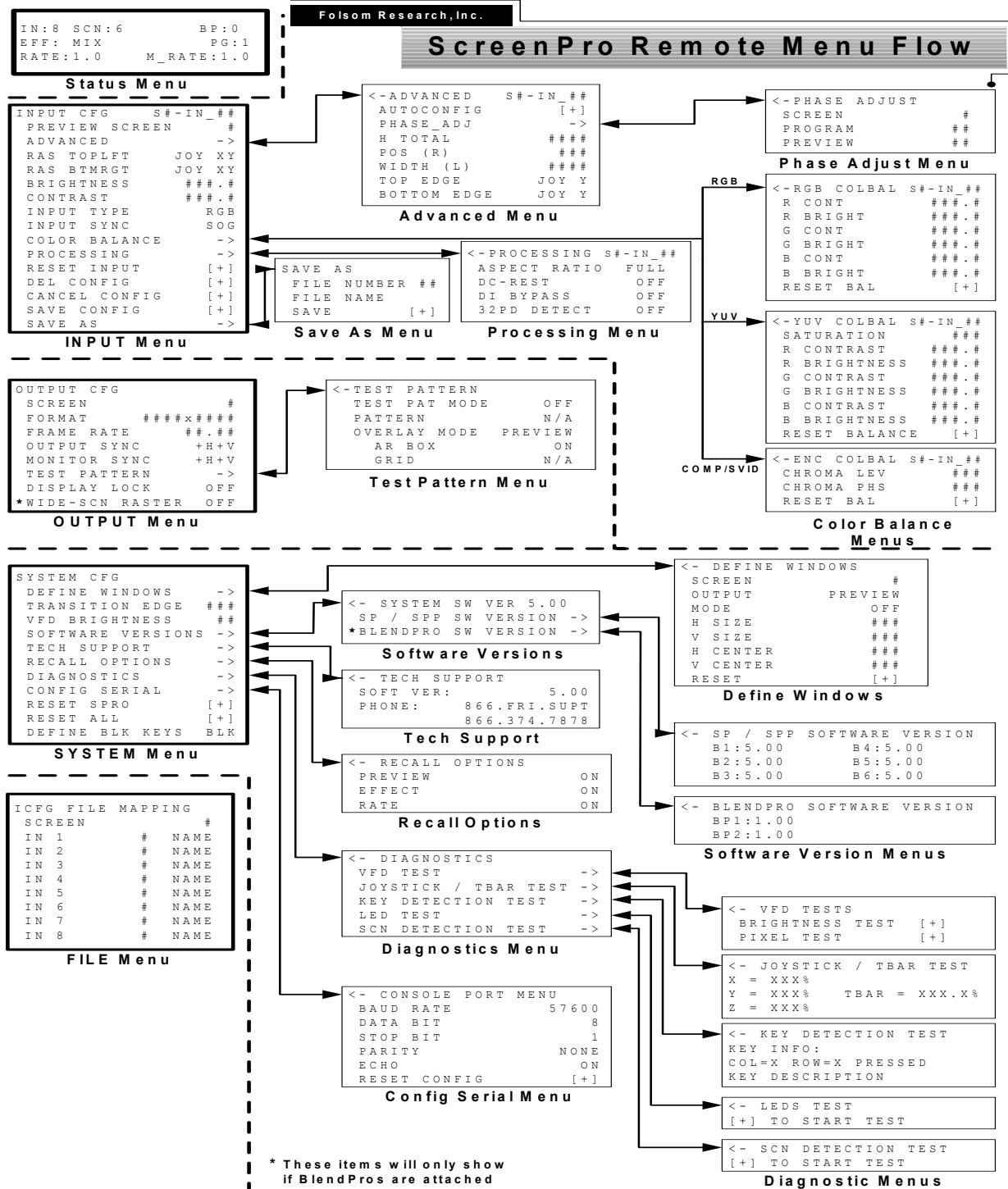
### What you will find in this chapter...

- ❑ *ScreenPRO Menu Flow*
- ❑ *Configuration of External ScreenPro Units*
- ❑ *Console Overview*
- ❑ *Screen Destinations*
- ❑ *Presets*
- ❑ *Configuration Keypad: Input, Output, and System Menus*
- ❑ *Patterns Keypad: Wipe Effects and Transition Rates*
- ❑ *Destination, Program, and Preview Selections*
- ❑ *Picture In Picture Operation*
- ❑ *Luminance Keying Operation*
- ❑ *Freeze Function Operation*
- ❑ *Black Program and Black Preview*
- ❑ *PIP Link Operation*

Model FC-0608  
ScreenPRO Multi-Screen Remote Controller

# Operation

This portion of the manual provides instructions that indicate how to control all ScreenPro functions. Keys on the FC-0608 console are used to select sources and control transitions to support real-time control of presentations. The graphical display and menus are designed to simplify setup and adjustment of the entire video presentation system.



## Configuration of ScreenPro Units

**NOTE:** Use the chart below to help determine which software is compatible between systems. Other combinations of software are NOT guaranteed to operate properly. If you are unsure about the software versions you have, consult the factory for assistance. This table is subject to change without notice. Please check the web site ([www.folsom.com](http://www.folsom.com)) for current information.

Release Number	ScreenPro Software	FC-0608 Controller Software	BlendPro Software
1	25.00.P – 25.00.T	Versions Prior to 2.10	N/A
2	31.00.A	2.10	N/A
3	31.00.A	2.20	N/A
4	31.00.A	2.22	N/A
5	35.00.C	2.55	1.03 or higher
6	35.00.D	2.55	1.03 or higher
7	5.02	5.02	1.03 or higher
8	5.03	5.03	1.03 or higher

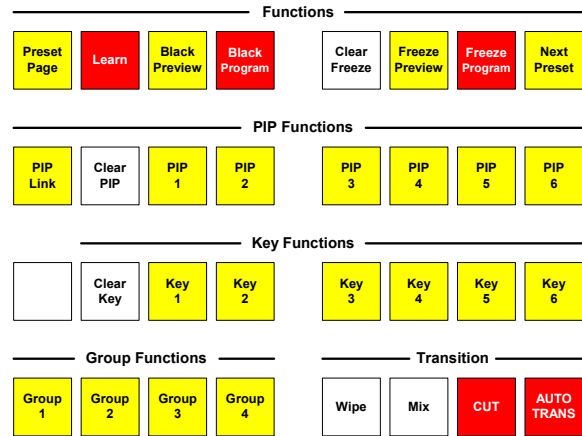
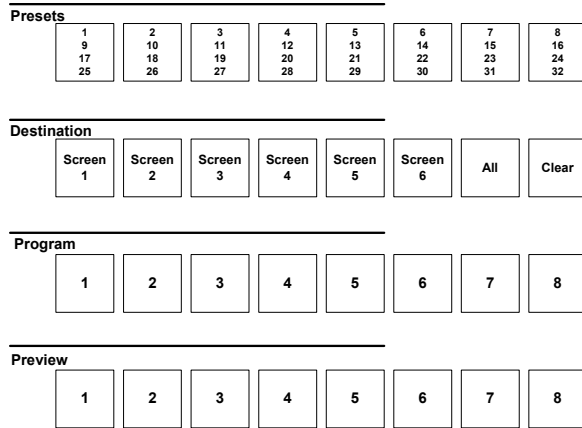
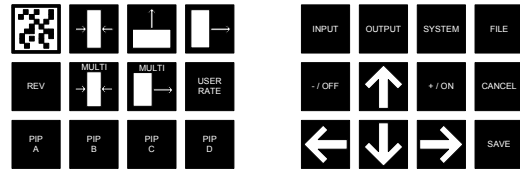
**Software Compatibility Chart**

ScreenPro units must be powered up and configured for remote control before the controller is turned on. To configure the ScreenPro units, connect them as shown in the wiring diagram in the Technical Description section of this document and then turn the units on. After a 50 second initialization period, the ScreenPro units will display the Main menu.

To enter remote control mode, press the MISC key on the ScreenPro front panel. Use the ADJUST control knob to scroll down to the item labeled EXT REMOTE CTRL. Press the SELECT key to select the external control feature. The ADJUST control can now be used to select among the supported modes of operation. Use the ADJUST knob to select the proper mode (SPR EXT ID #1 for Screen 1, SPR EXT ID #2 for Screen 2, SPR EXT ID #3 for Screen 3, SPR EXT ID #4 for Screen 4, SPR EXT ID #5 for Screen 5, or SPR EXT ID #6 for Screen 6). Note that each ScreenPRO must be configured with a unique ID number, the first ScreenPRO must have ID #1, and screens must be assigned sequentially from left to right. After the proper mode is selected press the SELECT key to activate the selected mode. The display will indicate the selected remote control settings and the backlighting of the lamps on the front panel will be turned off to remind the user that remote control mode has been selected.

To exit remote control mode and re-enable the ScreenPRO front panel, select STANDALONE mode in the EXT REMOTE CTRL menu and press the SELECT key. The ScreenPro unit will return to stand alone mode and the keys will again be backlit.

## Console Feature Overview



### Screen Destinations

The FC-0608 can support up to six Screen Destinations. Sources selected to drive Screen Destinations will be scaled to the selected output resolution. Screen Destinations support smooth transition effects at variable Rates using “Cut” and “Auto Trans” or the T-Bar. Input, Transition Rate and Pattern information can also be stored as a Preset for quick recall.

### Presets

Presets are memory locations internal to the controller that can be programmed with system configuration information for instant recall. Destination, Input, Pattern, Effect, and Transition Rates can be stored in a preset. The FC-0608 has 4 pages of 8 Presets, for a total of 32. The Preset Page key is used to select one of four possible pages as identified on the VFD display.

Once a Preset has been recorded, all of the information will be recalled to Preview with a single button push. It can then be transitioned to Program with “Cut,” “Auto Trans,” or “T-Bar.” *All Presets are learned from and recalled to Preview.*

The Preset memories can include:

- Input Selection(s)
- Transition Rate
- Individual Screens
- Keying parameters
- Types of transition Effects/Mix
- PIP parameters
- PIP LINK parameters

When a preset has been programmed, its key will illuminate when recalled. If a preset has not been programmed, the corresponding preset key will not illuminate when pressed.

In the *SYSTEM* menu, selecting *RESET ALL* will clear all stored presets.

### Preset Tutorial

Presets can convert what would have been a time-consuming transition setup to be a single-button recall to Preview.

The Preset we will build is a pretty common type of scenario (graphics on the outside screens and I-Mag on center screen) This Preset will reduce approx. 10 button keystrokes to a single-button recall to Preview.

We need to make a few assumptions before beginning:  
Screens 1 & 3 are our GFX Screens  
Screen 2 is assigned our I-Mag Screen

The Preset we will build will have the following information:  
Screens 1 & 3 will have Input 8  
Screen 2 will have Input 1 (cam 1)  
(All Screens will use a 1.0 sec rate with a wipe-down effect)

### **Learning a Preset**

On the *Destination Bus* push the Clear key and then select Screens 1 and 3. On the Preview bus, select Input 8 (PVW on Screen 1 & 3 switches will change to 8). Then select the Wipe-Down Effect on the Effect keypad and set the Rate to 1.0 sec.

Now, push the Clear key again and then select Screen 3 on the *Destination Bus* (Screens 1 & 3 will be dark). On the Preview bus select Input 1 (our Cam 1). At this point, all the information that we wanted is in a Preview state.

On the *Destination Bus* select Screens 1 and 3. At this point Screens 1, 2 and 3 will be the active destinations on the *preview bus*, which is what we want learned to the Preset.

Note: Any information on Destinations (on the preview bus) NOT selected (unlit), will not be saved to a Preset when learned.

Press and release Preset Page key until the PG: field on the controller display shows 1.

Press and hold the Learn key, and press Preset 1. The information is now learned to Preset 1 and can be recalled to Preview at any time.

### **Changing Preset Information**

Once a Preset is recalled (always to PVW), suppose you want to switch Screen 2 (the I-Mag screen & record deck) from Input 1 (cam 1) to Input 2 (cam 2).

To do this:

Press and hold Screen 2 on the Destination Bus, and select input 2 on the Preview bus.

The new input is now in Preview and you can make the transition. If you want to save this change to Preset 1, press and hold Preset Learn and select Preset 1. The change is now saved.

If this is a one-time change and you want keep Preset 1 as it was originally learned, simply do not re-learn it. When Preset 1 is recalled again, it will still have Input 1 (cam 1) learned to it.

### **Viewing a Preset**

Press the Preset Page key until the PG: field on the controller display shows the desired page number. Press a Preset memory key. The information learned to that memory location, if programmed, will go to Preview, and the appropriate Destination and Preview Input source buttons will light. If the selected preset key does not light, no information was stored in that preset and there is no information available to recall.

### **Next Preset Key**

The NEXT PRESET key will allow the user to cycle through all available presets without having to press a preset button. For example, if Presets 1,2 and 4 have saved information and Preset 4 is currently recalled, pressing Next Preset will recall Preset 1 into Preview. Pressing the Next Preset key again will recall Preset 2 and so forth. The user still has to initiate a transition for this look to go to program.

It is possible that Multiple Input sources will be lit on the Preview bus because each destination is capable of having a different input source. You can press and hold an individual Destination switch on the Destination Bus and the Preview and Program bus will go dark except for the inputs associated with the selected Destination.

### **PIP Presets**

To save PIP size and position parameters for quick recall, size and position an image in Screen 1 Preview. (*PIP presets are only learned from Screen 1 Preview.*) Hold the Learn key down and then press the PIP A, PIP B, PIP C or

PIP D key. The size and position of the PIP will be saved in non-volatile memory in the controller. To recall this preset, press the appropriate PIP [A-D] key. All active preview screens will have the PIP recalled to them.

### Keying Presets

To save KEYING parameters for quick recall, use the Learn Key. For example, configure the image you want to key in Preview on a specific screen. Press and hold the Learn Key and press Preset 1. The keying parameters are now saved in Preset 1. To verify that the keying parameters are saved, simply press the Preset 1 key.

### Configuration

Configuration is done using the Configuration Keypad and the joystick. Changes and settings are viewed on the VFD Display. Configuration includes Input Configuration, Output Configuration, and System Configuration.

The easy to use Configuration menus are keypad driven. Abbreviated instructions are viewed on the VFD Display to assist in menu navigation.

The following abbreviations are frequently used:

- [JOY XY] - this adjustment is done by moving the joystick up and down or left and right
- [JOY Y] - this adjustment is done by moving the joystick up and down
- [+] - this function is activated by pressing the +/ON key
- → - use the right arrow key to display the next menu

Menu navigation is performed using the arrow keys.

- The right arrow key, indicated by →, is used to display the next menu.
- The left arrow key, indicated by ←, is used to exit a menu and return to the previous menu.
- The up and down arrow keys are used to move within a menu. The current menu item will be highlighted to indicate that it is the current choice.
- Most of the menu selections are updated by pressing the +/ON key to increment the item or the -/OFF key to decrement the item. The joystick knob can be used in most cases as well to change a value.
- To Exit a menu, press and hold the ← key and push any "Menu" key (INPUT, OUTPUT, SYSTEM or FILE). After leaving a menu, only the Status information will be shown on the VFD.

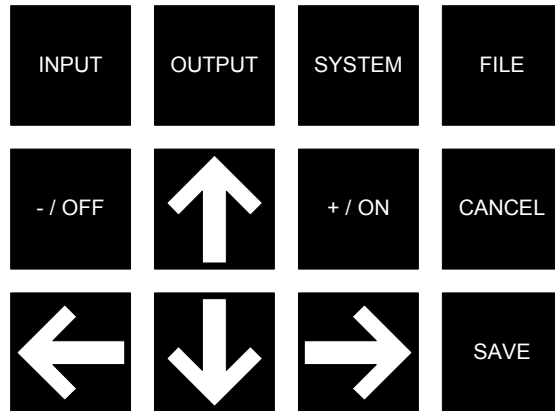
### Status Configuration Display

The first three lines of the VFD display are dedicated to the display of the system status information. This information includes:

- Number of available input sources (IN: #)
- Number of ScreenPROs detected in the configuration (SCN: #)
- Number of BlendPROs detected in the configuration (BP: #)
- Currently selected transition effect (mix, wipe, etc.) from the Effects keypad and MIX/WIPE keys.
- Currently selected (RATE: #.#)
- Currently selected (M\_RATE: #.#)
- Currently selected Preset Page (PG: #)

## CONFIGURATION KEYPAD

### Configuration



This section describes the operations performed with the Configuration Keypad. These operations involve menus displayed on the VFD display. In many cases, the joystick is used to adjust menu items in addition to the keypad controls. The following keys are on the configuration keypad:

- INPUT - Displays the INPUT configuration menu on the VFD display
- OUTPUT - Displays the OUTPUT configuration menu on the VFD display
- SYSTEM - Displays the SYSTEM configuration menu on the VFD display
- FILE - Displays the FILE configuration menu on the VFD display
- SAVE - Saves the configuration changes to non-volatile memory
- CANCEL - Cancels changes made before the last save
- +/ON - Increment or enable a menu item selection
- -/OFF - Decrement or disable a menu item selection
- RIGHT Arrow - Right Arrow used to navigate to the next lower menu
- LEFT Arrow - Left Arrow used to navigate to the previous menu
- UP Arrow - Used to navigate to a previous menu item selection within a menu
- DOWN Arrow - Used to navigate to the next menu item selection within a menu

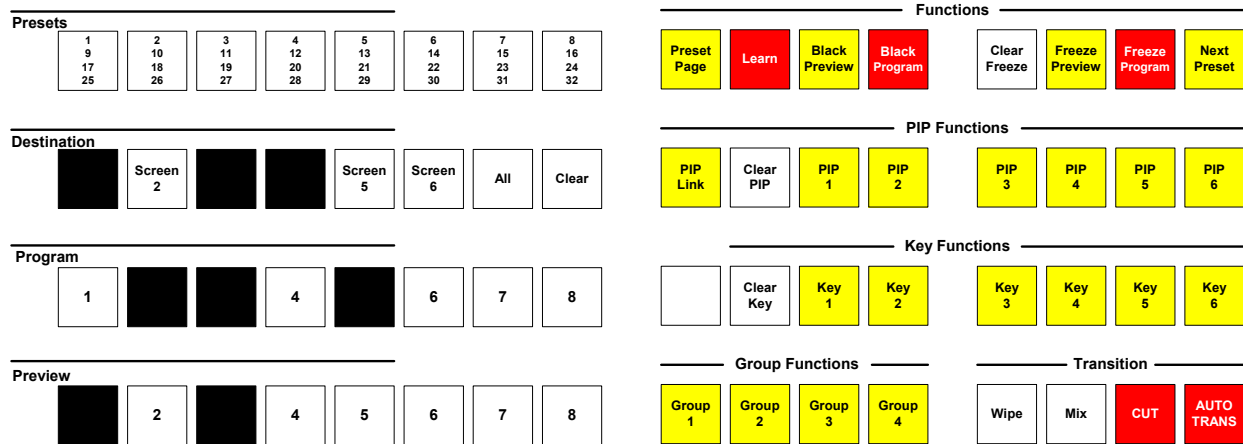
The following four sections: INPUT, OUTPUT, SYSTEM and FILE describe the operations associated with the configuration keypad.

## Input Selection

*Note: To select an Input source for a transition, you must have a Destination selected. If no Destination is selected, the Preview and Program buses will not be active. The exception to this rule is when a Preset is selected. Presets store the selected destination(s), input, rate, and transition effect, and will be recalled when selected.*

When a Destination is selected, the keys associated with the Preview and Program inputs for that Destination will light on the Preview and Program bus. Naturally, when just one Destination is active, only one input key on each bus will be illuminated. If multiple destinations are selected, multiple input keys will be active.

The below diagram illustrates multiple destinations with multiple sources:



## Group Functions

The user can combine multiple Destinations and “assign” them to a group. This allows Destinations that commonly follow each other to be selected quickly for an action. Any combination of Destinations can be assigned to a group. Put simply, Groups are preset combinations of Destinations that you want to switch together. The ScreenPro Multi-Screen Remote has 4 user-definable Quick Groups.

*Individual control of destinations is always possible, whether they have been assigned to a group or not.*

## Learning Groups

In this example we will build groups with the following destinations:

- Group 1 will contain Screen 1, 3 and Aux 1 and 2.
- Group 2 will contain Screen 2 and Aux 4.

To create this scenario, first push and hold the Group 1 key. The destinations currently assigned to this Group will light in the Destination Bar. While holding Group 1, push Screen 1, then Screen 3, then Aux 1 and finally Aux 2. If any other lights in the destination bus are illuminated, simply push these keys to extinguish the lights and unassociated those destination with this Group. Now you can release the Group 1 key.

Next, push and hold the Group 2 key and then push Screen 2 and then Aux 4. Just as before, if any other lights in the destination bus are illuminated, simply push these keys to extinguish the lights and unassociated those destination with this Group.

To verify that the Groups have been assigned correctly, simply push Group 1. Screens 1 and 3 along with Aux 1 and 2 should be the only active destination keys to light in the Destination Bus. By pushing the Group 2 key, Screen 2 and Aux 4 will become the only active destinations. All other destinations will become unlit along with the Group 1 key.

*If you want Screen 1, 2 and 3 along with Aux 1, 2 and 4 to be active, simply push the Group 1 and 2 keys simultaneously.*

## Input Configuration – Configuration Keypad *INPUT* Key

Input Configuration is used to generate an Input Configuration file *for each input source*. Input Configuration is performed for each input source on the Screen 1's Preview monitor. Once set up, and saved, the Input Configuration files associated with each source are automatically activated each time a source is selected. The first line in the INPUT menu contains the name of the input source (IN\_1/IN\_8) if an input source has been previously configured or EMPTY if this input source has never been configured. When all changes have been made to a particular input, press the SAVE key to update the non-volatile memory and to send the updated information to all ScreenPRO's.

**Menu items highlighted on the VFD display indicate that this is the item being adjusted. Menu items followed by → indicate additional menus. When → is present, use the “right arrow” key to go to further levels in the menu structure. Use the “left arrow” key to back out of the menu.**

```
INPUT CFG          S#-IN_##
ADJ PREVIEW SCREEN #
ADVANCED           →
RAS TOPLFT        [JOY XY]
RAS BTMRGT        [JOY XY]
BRIGHTNESS        ###.#
CONTRAST           ###.#
INPUT TYPE         RGB
INPUT SYNC         SOG
COLOR BALANCE     →
PROCESSING         →
RESET INPUT       [+]
DEL CONFIG        [+]
CANCEL CONFIG     [+]
SAVE CONFIG       [+]
SAVE AS           →
```

### INPUT→ADJ PREVIEW SCREEN

Leave this field set to 1 in order to make adjustments to your inputs on Screen 1 that will be copied to other screens after a SAVE CONFIG has been performed. If your other screens use different output resolutions when compared to Screen 1, then set this field to match the Preview screen you wish to adjust. After making your adjustments, use the SAVE CONFIG field to save to the File Number specified in the File Configuration Menu. The File Configuration menu described later in this document can then be used to associate file numbers with a particular screen.

### INPUT→ADVANCED

This menu allows the user to configure the input source for 1:1 sampling. This can achieve a crisp image, but may involve entering information that is not available to the user. This feature is provided to allow users who know or are able to determine the characteristics of their video sources to enable 1:1 sampling. If you do not know the characteristics of your video signals, the ScreenPRO will automatically adjust to the input video. It may be necessary to visually adjust the edges, but no other inputs are required.

### 1:1 Sampling Overview

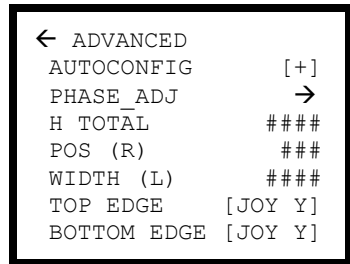
In order to scale an image it must first be digitized. This is the process of changing the analog graphics signals (Red, Green, and Blue for example) into pixels stored in the ScreenPro image memory. The default mode of the ScreenPro is to over sample the input image producing more samples than there 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-construction 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

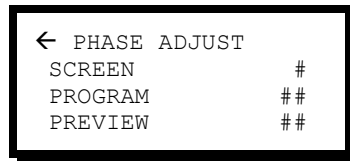
To automatically set-up for 1:1 Pixel Sampling the input image should have non-black data at the edges and have some amount of text or other graphics. The standard Windows GUI is a good example. With an appropriate image displayed on the Preview 1 Monitor, select the AutoConfig field within the Advanced Menu and press +/ON. In a couple of seconds, the image should return properly adjusted. During this process, the other Preview screens will be switched to the source selected in Preview 1, adjusted and then returned to their previous state.

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.



### INPUT→ADVANCED→AUTOCONFIG

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, POS (R), and WIDTH (L) menu fields are calculated and loaded as part of the Auto Config process. Also, the PROGRAM and PREVIEW phase numbers are set to 0 within the PHASE\_ADJ submenu. To activate Auto Config mode, select the AutoConfig field within the Advanced Menu and press the +/ON key.



### INPUT→ADVANCED→PHASE ADJUST

This menu allows the user to adjust the sample clock phase for the program output or preview output of a specific screen. This menu displays a number between -16 and +15 for each of the screens of Program and Preview. The numbers represents phase adjustment for the sample clock on the output.

### INPUT→ADVANCED→PHASE ADJUST→SCREEN

Use the Screen field to tell the controller which screen is to be manually adjusted when program or preview settings are updated. Use the -/OFF or +/ON keys to change the screen number.

### INPUT→ADVANCED→PHASE ADJUST→PROGRAM

The menu item allows the clock phase of the *program* output for the screen identified with the SCREEN menu item to be adjusted. 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 with the -/OFF or +/ON keys.

### INPUT→ADVANCED→PHASE ADJUST→PREVIEW

The menu item allows the clock phase of the *preview* output for the screen identified with the SCREEN menu item to be adjusted. 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 with the -/OFF or +/ON keys.

### **INPUT→ADVANCED→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 with the -/OFF or +/ON keys.

### **INPUT→ADVANCED→POS (R)**

This menu field displays the number of clock intervals assigned to the horizontal front porch. The parameter is automatically loaded when the Auto Config process is complete. Manual adjustments can be made with the -/OFF or +/ON keys. Adjustments should be made to move the right edge of the image to the desired location.

### **INPUT→ADVANCED→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 with the -/OFF or +/ON keys. Adjustments should be made to move the width of the image to the desired size.

### **INPUT→ADVANCED→TOP EDGE**

While in the Advanced menu, a user can make vertical adjustments to the image. Use the Y-axis of the joystick to place the edge of the image in the desired location.

### **INPUT→ADVANCED→BOTTOM EDGE**

While in the Advanced menu, a user can make vertical adjustments to the image. Use the Y-axis of the joystick to place the edge of the image in the desired location.

### **INPUT→RAS TOPLFT**

Use the joystick Y-axis to position the *upper and left* edges of the image to the Aspect Ratio box. Y-axis controls vertical movement and X- axis controls horizontal movement. The image is positioned on the Preview monitor of Screen 1.

### **INPUT→RAS BTMRGT**

Use the joystick Y axis to position the *lower and right* edges of the image to the Aspect Ratio box. The image is positioned on the Preview monitor of Screen 1.

### **INPUT→BRIGHTNESS**

Turn the joystick control clockwise to increase brightness and counterclockwise to decrease brightness. The keypad -/OFF and +/ON keys can also be used. The changes to the image can be seen on the Preview monitor of Screen 1. The brightness level will be displayed on the VFD display. To quickly reset Brightness to 100%, press the -/OFF key on the keypad with the +/ON key.

### **INPUT→CONTRAST**

Turn the joystick control clockwise to increase contrast and counterclockwise to decrease contrast. The keypad -/OFF and +/ON keys can also be used. The changes to the image can be seen on the Preview monitor of Screen 1. The contrast level will be displayed on the VFD display. To quickly reset Contrast to 100%, press the -/OFF key on the keypad with the +/ON key.

### **INPUT→INPUT TYPE**

This menu item will override the default input video type selected by the system. Use the +/ON or -/OFF keys the keypad to scroll through the most common settings: RGB, Beta50, Beta60, MII, EBU, COMP, Svid. The selected setting will be updated on the VFD display. As the setting is changed, you will see the change on the image displayed on the Preview 1 output.

### **INPUT→INPUT SYNC**

This menu item will override the default input video sync type selected by the system. Use the +/ON or -/OFF keys to scroll through the available settings: AUTO, SOG, CSYNC, and H&V. The selected setting will be updated on the VFD display. As the setting is changed, you will see the change on the image displayed on the Preview 1 output.

**NOTE: 3 and 4-wire sources should be manually set to the correct sync type.**

## **INPUT→COLOR BALANCE**

This menu item will display the color balance adjustment menu. The format of the menu displayed is controlled by the input type selection.

### **INPUT→COLOR BALANCE→RGB COLBAL**

This menu is displayed when an RGB input source type is selected. The menu items allow the user to adjust the red, blue, and green brightness and contrast settings independently of the overall brightness and contrast settings. The settings can be adjusted by +/-25.0% using the +/ON or -/OFF keys as well as the joystick knob. To reset the settings, use the down arrow to highlight the RESET BALANCE menu item and press the +/ON key. The VFD display updated to show the currently selected settings and the Preview monitor of Screen 1 changes to display the effect of the changes.

### **INPUT→COLOR BALANCE→YUV COLBAL**

This menu is displayed when a YUV (BETA) input source type is selected. The menu items allow the user to adjust the saturation from 0.0% to 200% and to adjust the red, blue, and green brightness and contrast settings by +/- 25.0% independently of the overall brightness and contrast settings. The changes can be performed using the +/ON or -/OFF keys as well as the joystick knob. To reset the settings, use the down arrow to highlight the RESET BALANCE menu item and press the +/ON key. The VFD display updated to show the currently selected settings and the Preview monitor of Screen 1 changes to display the effect of the changes.

### **INPUT→COLOR BALANCE→ENC COLBAL**

This menu is displayed when a composite or S-Video input source type is selected. The menu items allow the user to adjust the saturation from 0.0% to 200% and to adjust the hue between 0 and 360 degrees. The changes can be performed using the +/ON or -/OFF keys as well as the joystick knob. To reset the settings, use the down arrow to highlight the RESET BALANCE menu item and press the +/ON key. The VFD display updated to show the currently selected settings and the Preview monitor of Screen 1 changes to display the effect of the changes.

## **INPUT→PROCESSING**

This menu contains items to control the input video processing performed by the ScreenPROs.

### **INPUT→PROCESSING→ASPECT RATIO**

This menu item is applicable to all sources as well as RGB HDTV type sources. For any of these video types, a selection of FULL or WIDE becomes available. When set to FULL the image will be allowed to fill the entire output raster. If WIDE 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.

### **INPUT→PROCESSING→DC RESTORE**

This menu items allows the user to select one of three DC Restoration modes (PRCH, PDLY, or SYNC). The default mode is DC restore to the back porch of the incoming video signal (PRCH). The PDLY mode is used when a tri-level sync is on the input, such as an HDTV signal. The SYNC mode selects DC restoration to the sync interval and may be useful for videos without a back porch interval. Use the +/ON or -/OFF keys to change this item.

### **INPUT→PROCESSING→DE-INTRLC BYPASS**

This menu items is only applicable to NTSC or PAL input video. The de-interlacer should be on for optimal performance with full motion video. Turn the de-interlacer off for Camera feeds in order to reduce processing delay through the system. Use the +/ON or -/OFF keys to change this item.

### **INPUT→PROCESSING→3:2 PD DETECT**

This menu items is only applicable to standard video (component, s-video, or composite) inputs. The default mode is OFF. The 3:2 Sequence Detect feature should be turned on to process video derived from film source material. Use the +/ON or -/OFF keys to change this item.

### INPUT→RESET INPUT

Highlighting this menu item and pressing the +/ON key will reset all input values for the currently selected source to its default configuration settings.

### INPUT→DEL CONFIG

Highlighting this menu item and pressing the +/ON key will delete the information saved in the non-volatile memory for the currently selected input source displayed on Preview monitor selected in the ADJ PREVIEW MONITOR field.

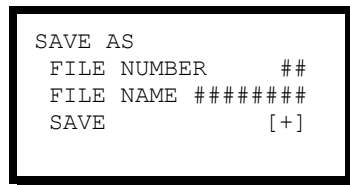
### INPUT→CANCEL CONFIG

Highlighting this menu item and pressing the +/ON key will cancel any changes to the input configuration settings for the input source currently displayed on the Preview monitor selected in the ADJ PREVIEW MONITOR field. Canceling is defined as any changes made prior to the last configuration update (performed when the SAVE key is pressed or the SAVE CONFIG menu item is selected). The processing performed when this menu item is selected is also performed when the CANCEL key is pressed.

### INPUT→SAVE CONFIG

Highlighting this menu item and pressing the +/ON key will save any changes to the input configuration settings in non-volatile memory and send this information to all of the screens to inform them of the input changes. Pressing the SAVE key has the same effect. If the save operation is not performed, any changes will be lost when the controller is powered off. Additionally, if save is not performed, the updated will not be transmitted to the other screens in the system so the input source will not be processed the same way by the other screens. After the save is performed, the input source can be displayed on any screen and it will be processed/displayed correctly as configured.

### INPUT→SAVE AS



```
SAVE AS
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 – 64).

The second line of the menu allows you to assign an eight-character file name to the file. Use the ON/+ or OFF/- keys to select the character position. The Z-Axis of the Joystick will control character selection. The available characters are: A – Z, 0 – 9, Space (no character), Dash (-), Period (.) and Underscore (\_). Entry of a file name is optional. *When the file number and name have been entered, select SAVE and press ON/+ to save the configuration.*

## Output Configuration – Configuration Keypad OUTPUT Key

Output Configurations are selected for each screen output. Changes are automatically saved to non-volatile memory.

```
OUTPUT CFG
SCREEN          #
FORMAT         ###x####
FRAME RATE     ##.##
OUTPUT SYNC    +H+V
MONITOR SYNC   +H+V
TEST PATTERN   →
DISPLAY LOCK   OFF
WIDE-SCN RASTER OFF
```

### OUTPUT→SCREEN

Use the +/ON key or -/OFF key to select the output screen you wish to adjust.

### OUTPUT→FORMAT

Use the +/ON key or -/OFF key to scroll through the available output resolutions:

- 640x480
- 800x600
- 1024x768
- 1024x768 II *(Supports Samsung®'s SyncMaster™ 151 Series LCD Monitors)*
- 1280x1024
- 1280x1024 II *(Supports Hitachi® LCD monitors)*
- 1280x720
- 1280x960
- 1280x768 *(When used at 60Hz, supports Pioneer® Plasma Displays)*
- 1365x768
- 1365x1024

Note: 1280x960, 1280x1024, 1280x1024 II and 1365x1024 are not available when the frame rate is set to 75Hz. Only 1280x768 is available when the frame rate is set to 60Hz.

### OUTPUT→FRAME RATE

Use the +/ON key or -/OFF key to scroll through the available output selections: 59.94Hz, 50Hz, 75Hz and 60Hz.

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 (59.94Hz for NTSC, 50Hz or 75Hz for PAL).

### OUTPUT→OUTPUT SYNC

Use the +/ON key or -/OFF key to scroll through the available program sync output selections:

- Comp
- +H+V
- +H-V
- -H+V
- -H-V

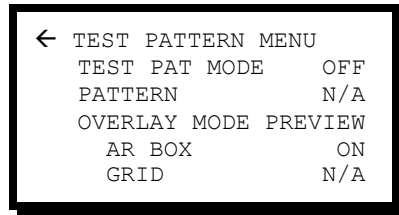
### OUTPUT→MONITOR SYNC

Use the +/ON key or -/OFF key to scroll through the available preview sync output selections:

- Comp
- +H+V
- +H-V
- -H+V
- -H-V

## OUTPUT→TEST PATTERN

Use the “right arrow” key to enter this menu that controls the display of system test patterns.



## OUTPUT→TEST PATTERN→TEST PAT MODE

Use the +/ON and -/OFF keys to enable or disable the system Test Patterns. When TEST PAT MODE is OFF, both the PATTERN and GRID fields are not available (N/A). When TEST PAT MODE is ON, use the fields below to select the Test Pattern, Aspect Ratio box or Grid as required.

## OUTPUT→TEST PATTERN→PATTERN

The +/ON and -/OFF keys cycle through the list of available test patterns when TEST PAT MODE is ON. The test patterns are output to all monitors on the program and preview buses. When test patterns are OFF, the OVERLAY MODE selection, controls the output destination(s) of the AR BOX selection. When test patterns are ON, the AR BOX and GRID selections are output to both program and preview buses. The following test patterns are available:

- OFF
- V RAMP
- H RAMP
- BURST (1ON 1OFF)
- CLRBARS
- BLACK

## OUTPUT→TEST PATTERN→OVERLAY MODE

The +/ON and -/OFF keys cycle through the list of available output options. When test patterns are OFF, the OVERLAY MODE selection, controls the output destination(s) of the AR BOX selection. When test patterns are ON, the AR BOX and GRID selections are output to both program and preview buses. The following output options are available:

- OFF
- MAIN
- PREVIEW
- BOTH

## OUTPUT→TEST PATTERN→AR BOX

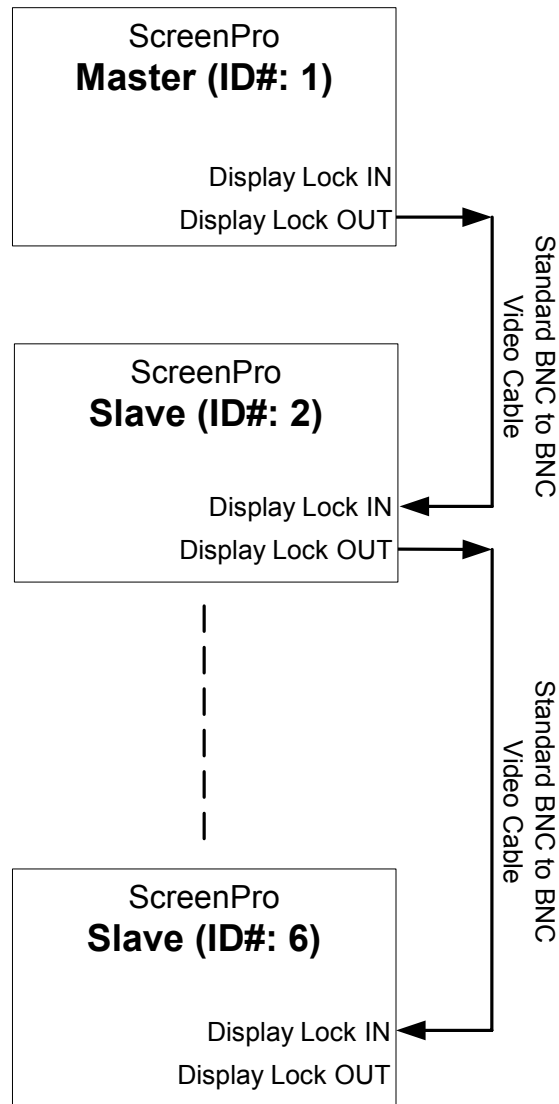
The +/ON and -/OFF keys control the display of the Aspect Ratio Box. When TEST PAT MODE is OFF, the OVERLAY MODE selection, controls the output destination(s) of the AR BOX selection. When test patterns are ON, the AR BOX and GRID selections are output to both program and preview buses.

## OUTPUT→TEST PATTERN→GRID

The +/ON and -/OFF keys control the display of the Grid. When TEST PAT MODE is OFF, the GRID is not available (N/A). When test patterns are ON, the AR BOX and GRID selections are output to both program and preview buses.

## OUTPUT→DISPLAY LOCK

Display Lock is an optional feature that allows multiple screens to have their outputs synchronously locked together. This is achieved by having one screen act as a master timing unit. The other screens are slaved to the master unit and lock their output timing to the master unit. If you have ScreenPro(s) with this option, see the diagram below for help in connecting units together.



**ScreenPro Display Lock Connection Diagram**

After connecting the units together, go to the Output menu in the Controller. Make sure the **FORMAT** and **FRAME RATE** fields are the same for each screen. Finally, go to the **DISPLAY LOCK** field and set this field 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 system, the **DISPLAY LOCK** field will show **N/A**. If you wish to upgrade your system with this Display Lock feature, contact the factory for more information.

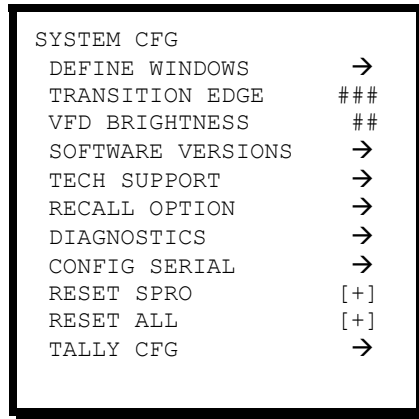
**OUTPUT→WIDE-SCN RASTER**

This feature will overlay green vertical line(s) (2 pixels wide) at the appropriate location based on information provided by a BlendPro system. The line will appear on either Preview or Program monitor based on the current AR Box setting of PREVIEW, MAIN or BOTH. If the Raster Box is OFF, then the line(s) will default to the Preview monitor.

Enabling this option is useful when the operator wants to know what will be displayed in the wide-screen image. When BlendPro is setup for CENTER justification, one line will appear on screen 1 and the other line will show on the highest numbered ID screen connected to BlendPro. When BlendPro is set for LEFT justification, only one line will appear. This line will be placed on the highest numbered ID screen connected to BlendPro.

## System Configuration Menu – Configuration Keypad **SYSTEM** Key

The configuration items in this menu are global to the system, i.e., not applicable to any one input source or output screen. Additionally, this menu contains selections to test the controller hardware and perform ScreenPRO and controller resets to factory default conditions. Press the SAVE key when done to save changes to non-volatile memory.



### **SYSTEM→DEFINE WINDOWS**

This selection displays a menu of adjustments used to control a window. This window is similar to a PIP, but also provides the capability to zoom and pan a video source across multiple screens. To set up a video output that spans multiple output screens, adjust and size each screen individually to achieve the final effect. The process is time consuming, but all of the settings can be saved to the PRESET keys for quick recall later. When active, the window can be transitioned using the T-BAR, CUT, and AUTO TRANS keys. The PIP keys will illuminate and flash in the same manner as when a PIP is displayed. Keying is not possible when a window is active on an output screen.

#### **SYSTEM→DEFINE WINDOWS→SCREEN**

This selection selects the output screen to be used when adjusting the other parameters in this menu. It varies from one to the number of available screens. Use the +/ON key and the -/OFF key to adjust this parameter.

#### **SYSTEM→DEFINE WINDOWS→OUTPUT**

This selection selects the output bus of the selected screen. PROGRAM or PREVIEW can be selected by pressing the +/ON key or the -/OFF key. The other adjustments in this menu will affect the specified screen and output monitor.

#### **SYSTEM→DEFINE WINDOWS→MODE**

This selection enables or disables the WINDOW. This parameter should be enabled to view the adjustments made to the size and center parameters. Use the +/ON key to enable the WINDOW mode and use the -/OFF key to disable this mode.

#### **SYSTEM→DEFINE WINDOWS→H SIZE**

This selection is used to specify the size, in percent, of the horizontal window. If the size is less than or equal to 100%, the window will act as a PIP on one screen. If the parameter is more than 100%, the window will span more than one output screen. For example, 100% is full size for one output screen and 200% causes the image to horizontally fill two output screens completely. Note that H SIZE and V SIZE determine the aspect ratio of the output window. Changing the aspect ratio to other than 1:1 will cause the output to become distorted. Also, some of the video on the top and bottom will be cropped when zooming the image. Use the +/ON key, -/OFF key, and joystick knob to adjust this parameter.

#### **SYSTEM→DEFINE WINDOWS→V SIZE**

This selection is used to specify the size, in percent, of the vertical window. If the size is less than or equal to 100%, the output will entirely fit, vertically, on the output screen(s). If the parameter is more than 100%, the window be zoomed or enlarged and the top and bottom will be cropped. Note that H SIZE and V SIZE determine the aspect ratio of the output window. Changing the aspect ratio to other than 1:1 will cause the

output to become distorted. Also, some of the video on the top and bottom will be cropped when zooming the image. Use the +/ON key, -/OFF key, and joystick knob to adjust this parameter.

**SYSTEM→DEFINE WINDOWS→H CENTER**

This selection is used to specify the center, in percent, of the horizontal window. 0 is the center of the screen. 100% is the left edge; -100% is the right edge. Use this adjustment to position the image as desired on the output screen. Use the +/ON key, -/OFF key, and joystick knob to adjust this parameter.

**SYSTEM→DEFINE WINDOWS→V CENTER**

This selection is used to specify the center, in percent, of the vertical window. 100% is the top, 0% is the center, and -100% is the bottom edge. Use this adjustment to position the image as desired on the output screen. Use the +/ON key, -/OFF key, and joystick knob to adjust this parameter.

**SYSTEM→DEFINE WINDOWS→RESET**

This selection is used to clear any settings and adjustments made in this menu. Use the +/ON key to reset the values to factory defaults.

**Define Windows Example:**

This example will enlarge an input source to fill three output screens horizontally starting at the top of the image. The lower portion of the image will be cropped. Set up output screens 1, 2, and 3 in the DEFINE WINDOWS menu as follows:

Screen:	<b>1</b>	<b>2</b>	<b>3</b>
Output:	PREVIEW	PREVIEW	PREVIEW
Mode:	ON	ON	ON
H Size:	300	300	300
V Size:	300	300	300
H Center:	100	0	-100
V Center:	100	100	100

**SYSTEM→TRANSITION EDGE**

This is a global adjustment that determines the fuzziness of the Wipe Edge for all of the Wipe Transitions. The selectable options are: 4, 8, 16, 32, 64, 128 and 256 with the units being pixels. The default is 16. Use the +/ON and -/OFF keys to change the selection.

**SYSTEM→VFD BRIGHTNESS**

This adjustment determines the brightness of the controller's VFD display. To avoid "burning-in" the display, use the lowest setting possible. This is changed using the +/ON and -/OFF keys as well as the joystick knob.

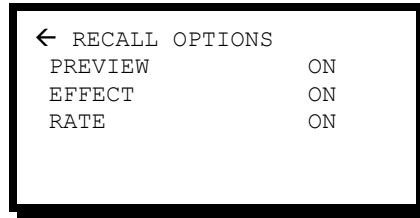
**SYSTEM→SOFTWARE VERSIONS**

This selection displays the software version information for all ScreenPROs and BlendPros in the system as well as for the controller. For proper system operation, all ScreenPROs should be updated with the same software version.

**SYSTEM→TECH SUPPORT**

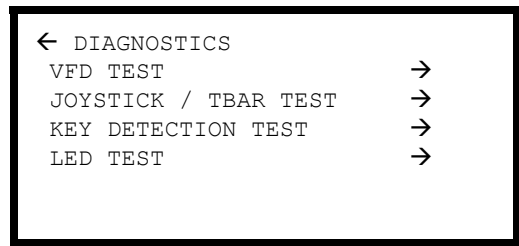
Look at this menu for current tech support numbers that can be used on a 24/7 basis.

## SYSTEM→RECALL OPTION



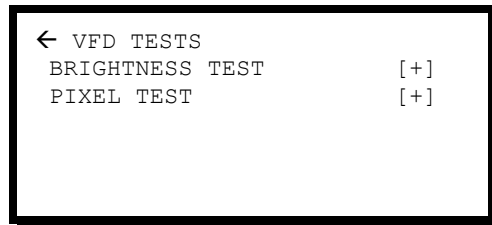
Recall options allow the user to select which items are recalled from Preset Memories when a system preset key is pressed. For example, if the Recall Option Effect is turned OFF, the Transition Effect will not be recalled from Preset Memories. Use the +/ON and -/OFF keys to configure the option.

## SYSTEM→DIAGNOSTICS→DIAGNOSTICS



This menu is used to test the controller's hardware. Use the UP and DOWN arrow keys to highlight the desired test to execute and press the RIGHT arrow key.

## SYSTEM→DIAGNOSTICS→VFD TEST



This menu is used to test the controller's VFD display hardware. Use the UP and DOWN arrow keys to highlight the desired test to execute and press the +/ON key.

## SYSTEM→DIAGNOSTICS→VFD TEST→BRIGHTNESS TEST

This diagnostic test verifies the VFD display hardware by changing the display brightness through all possible settings. The display should change from dim to bright in 16 steps. The information on the screen should not flicker, drop out, or change other than in intensity. If the display shows traces of previous display information, the brightness setting is probably too high and should be reduced to avoid further screen burn-in.

## SYSTEM→DIAGNOSTICS→VFD TEST→PIXEL TEST

This diagnostic test verifies the VFD display hardware by turning on every pixel in sequence. All pixels should illuminate uniformly. No pixels should be off.

## SYSTEM→DIAGNOSTICS→JOYSTICK/TBAR TEST

This diagnostic test verifies that the joystick and t-bar are functioning properly. Moving the joystick left should change the "X" reading from 0 to -100% in small steps. Moving the joystick to the left should change the "X" reading from 0 to 100% in small steps. Moving the joystick up should change the "Y" read from 0 to -100% in small steps. Moving the joystick down should change the "Y" read from 0 to 100% in small steps. Turning the knob counterclockwise should change the "Z" reading from 0 to -100% in small steps. Turning the knob to the right should change the "Z" reading from 0 to 100% in small steps. Moving the T-Bar should change the T-Bar reading from 0.0 to 100.0% in small steps.

## SYSTEM→DIAGNOSTICS→KEY DETECTION TEST

This diagnostic test verifies that the keys are functioning properly. Each time a key is pressed, the row, column, key name, and "PRESSED" should be reported. Each time a key is released, "PRESSED" should change to "RELEASED". The keys are organized into several columns of 8 rows each. The LEFT arrow key terminates the test.

## SYSTEM→DIAGNOSTICS→LEDS TEST

This diagnostic test verifies that the LEDs for all keys are functioning properly. The LEDs are grouped into two banks, left and right of the T-Bar. This test verifies the left bank and then the right bank. A single LED is walked through each bank. After that, each group of 16 keys is flashed. Finally, the test ends with all LEDs illuminated.

## SYSTEM→DIAGNOSTICS→SCN DETECTION TEST

This diagnostic test verifies which screens in the system are communicating with the Controller. After the ON/+ key is pressed to start the test, the controller goes out and attempts to communicate with Screens 1 – 6. For each screen it finds, an "OK" message is printed next to the screen number. For each screen Not Found, a "NF" message is printed next to the screen number. This test will test all six screens regardless of the number of actual screens installed in the system. When the test is finished, the "DONE" message will be printed in the lower right corner of the display.

## SYSTEM→CONFIG SERIAL

```
<- CONSOLE PORT MENU
BAUD RATE      57600
DATA BIT       8
STOP BIT       1
PARITY         NONE
ECHO           ON
RESET CONFIG   [+]
```

Allows the user to change ECHO from ON/OFF. BAUD RATE can be adjusted from 1200, 2400, 4800, 9600, 19.2K, 38.4K or 57.6K. 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 CONFIG will default the settings to Baud = 57.6, Parity = None, Data Bits = 8, Parity = None and Echo = On.

**SYSTEM→RESET SPRO**

This menu item is used to reset the ScreenPROs. Press the +/ON key to initiate the reset sequence. The ScreenPROs will be reset to their factory defaults.

**SYSTEM→RESET ALL**

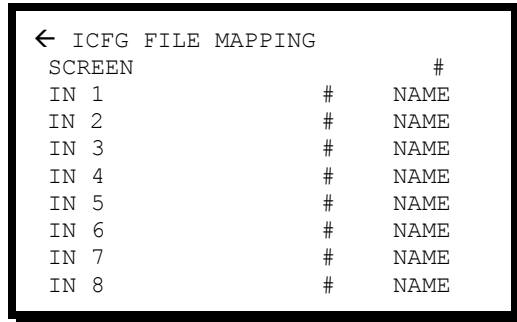
This menu item is used to reset the ScreenPROs and the controller. Press the +/ON key to initiate the reset sequence. The ScreenPROs and the controller will be reset to their factory defaults.

**SYSTEM→DEFINE BLK KEYS**

This menu item allows a user to define the color used when either the “BLACK PROGRAM” or “BLACK PREVIEW” keys are pressed. Currently the choices are BLK (default) or WHT (White). If WHT is chosen, whenever one of the two keys mentioned above are pressed, the screen will go White.

### File Configuration Menu – Configuration Keypad *FILE* Key

The File Menu allows the user to assign one of up to 64 input configuration files to each of the eight input sources on a per screen basis. This is useful if you desire to run multiple output resolutions between the various ScreenPros in your system. For example, let's say you have a two-screen setup. Screen 1 is set for a 4:3 aspect ratio at 1024x768, while Screen 2 is set for a 16:9 aspect ratio like 1280x720. In this case, you will need two separate input files for every input source you wish to view on these displays. After creating these files using the Input Configuration menu, use this menu to associate those files to the correct inputs per screen.



Example of a two-screen system where screens 1 and 2 will recall different files for each input:

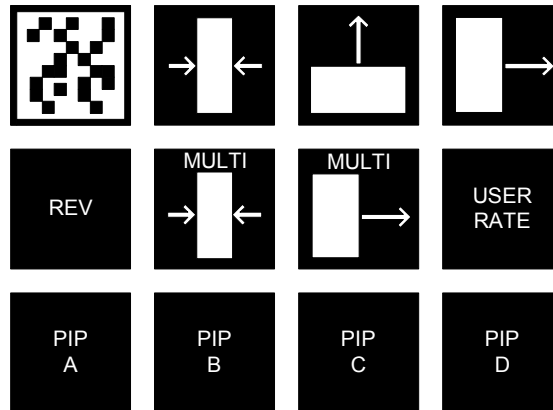
Screen:	1	2
IN 1:	1 DVD1_A	2 DVD1_B
IN 2:	3 COMP1_A	4 COMP1_B
IN 3:	5 CAM1_A	6 CAM1_B
IN 4:	7 BETA1_A	8 BETA1_B
IN 5:	9 EMPTY	9 EMPTY
IN 6:	9 EMPTY	9 EMPTY
IN 7:	9 EMPTY	9 EMPTY
IN 8:	9 EMPTY	9 EMPTY

See the section “File Mapping Tutorial” below for a complete description on how this feature works.

## Patterns Keypad

The PATTERNS keypad is used to select the WIPE PATTERN, control the transition rate, and save and recall PIP presets. The currently selected wipe pattern, currently enabled effect (mix or wipe), and the user rate are displayed on the system status display (first three lines of the VFD display).

### Patterns



### Wipe Patterns

When Wipe is selected (key is illuminated) from the TRANSITION controls, you can use any available pattern to control the transitions performed by the T-Bar or AUTO TRANS key. The “REV” key will reverse any of the selected patterns, i.e., “wipe left” when reversed will be come “wipe right.” Patterns noted as “Multi” are designed for multi-screen effects and require at least two ScreenPROs to be installed in the system.

### Multi-Curtain



When selected for 2 or more screen wipes, Multi-Curtain will begin in the center and open each screen in progression. The “REV” Key can be used to select a Multi-Curtain close.

### Multi-Wipe



When selected for 2 or more screen transitions, Multi-Wipe will begin at the left and wipe each screen progressively, to the right. The “REV” Key can be used to select a Multi-Wipe from right to left. Non-Multi patterns will transition each selected screen simultaneously with the same pattern. “REV” will reverse the wipe on the selected pattern.

PIP A, B, C, and D are user programmable PIP size and position settings. To program these keys, adjust the PIP on Preset 1 to the desired position. Press and hold LEARN and press and hold either PIP A, B, C, D for 2 seconds. The PIP configuration is saved to the specified PIP preset key. To recall this PIP setting, press and hold the desired PIP key on the PIP Functions controls and select the PIP A, B, C, or D key. The saved PIP settings will be recalled to the specified PIP screen on the Preview bus.

### Transition Rates

The Transition Rate is user-definable. There are 2 adjustable rates. The first is the Standard Rate, which is used when dissolving a single-screen Pattern or Mix Effect.

The second Rate is to adjust the “WIPE” (M\_RATE on the status display) rate for transitioning single and Multi-Pattern Effects. This information is always displayed on the system status lines of the VFD display.

### **Changing the Single Screen Transition Rate**

1. Select a single screen effect from the Patterns keypad.
2. Press and hold the USER RATE key on the Patterns Keypad. The VFD display will show a prompt to turn the joystick knob to adjust the rate. Turn the joystick knob to set the desired rate and release the USER RATE key. The rate can be changed from 0.0 to 5.0 seconds in 0.1 second increments.

### **Changing the Multi Screen Transition Rate**

1. Select a multi screen effect from the Patterns keypad.
2. Press and hold the USER RATE key on the Patterns Keypad. The VFD display will show a prompt to turn the joystick knob to adjust the rate. Turn the joystick knob to set the desired rate and release the USER RATE key. The rate can be changed from 0.0 to 5.0 seconds in 0.1 second increments.

*The transition rates can also be changed by holding down the WIPE or MIX keys and turning the joystick knob.*

Presets can be used to save and restore these rates. Refer to the PRESET section for more information on saving and restoring presets.

### **Destination, Program, and Preview Selections**

The DESTINATION keys are used to identify which PROGRAM and PREVIEW input sources will be routed to a particular output (destination) screen. Although six destination keys are available, the number of useable keys is determined by the number of ScreenPROs in the system. The controller automatically determines the number of active ScreenPROs and will ignore key presses of destination keys for ScreenPROs that are not installed. The PROGRAM and PREVIEW keys correspond to an input source. Up to eight sources are available. The controller cannot tell if a video source is configured or not, so it is up to the user to configure the input video sources correctly.

#### **Configuring Destination Screens**

1. Press and hold the desired destination Screen key.
2. Press and release one Program key corresponding to the input to be routed to this screen's program output.
3. Press and release one Preview key corresponding to the input to be routed to this screen's preview output.
4. Release the destination screen key.

The destination screen is now configured. The T-bar, CUT, and AUTO TRANS keys will now transition the output on the selected screen between preview and the program input source.

When transitions are performed, the PROGRAM and PREVIEW keys will change to indicate that a transition has occurred. During a transition, both PROGRAM and PREVIEW keys may be illuminated to show that the output information contains video from both sources.

Configure the other screens using the same procedure.

At any time, pressing and holding a destination Screen key will illuminate the Program and Preview keys associated with that destination screen.

The system presets can be used to save and recall these screen configurations as well. Refer to the system preset section for more information on programming the system preset keys.

The ALL key on the Destination key row can be used to select or configure all available output screens simultaneously.

The CLEAR key on the Destination key row is used to disable all output screen destinations simultaneously.

### **Transition Selections**

Two transition keys are available: CUT and AUTO TRANS. Additionally, the T-BAR is used to perform manual transitions. These controls determine how video outputs are "transitioned" between the PREVIEW and the PROGRAM video input sources.

CUT immediately changes the output from the configured PROGRAM to the configured PREVIEW video source for the selected Destination(s).

The following transitions (AUTO TRANS and T-BAR) use the currently selected effect to achieve the transition.

AUTO TRANS will Transition the output from the configured PROGRAM to the configured PREVIEW video source for the selected Destination(s) using the currently selected Rate Effect to control the amount of time taken to complete the transition.

The T-BAR control allows the user to manually control the Transition Rate for the selected Effect.

## Transition Effects

Two types of transition effects are available: WIPE and MIX. Only one transition effect can be in effect at any one time, so it is not possible to have both WIPE and MIX illuminated at the same time.

Pressing the WIPE key allows the current Pattern Effect to be used for AUTO TRANS and T-BAR transitions. Refer to the PATTERNS KEYPAD description for more information on selecting the WIPE PATTERNS and setting the wipe rate.

Pressing the MIX key selects dissolve transitions. Refer to the PATTERNS KEYPAD for more information on setting the dissolve rate.

## Luminance Keying Operation

This section describes how to use the KEYING FUNCTION keys to perform luminance keying.

Video Mixing and Graphics Overlay Effects (Luminance Keying). This type of keying involves specifying a desired foreground luminance level; foreground areas containing luminance levels above (or below) the keying level are replaced with the background image. Below is a description on how to operate *Luminance Keying*.

1. The operator will select the source they want as a “key/overlay” and this source will be displayed on the preview monitor. This step can be performed on any of the Preview Screens as necessary.
2. To enable Keying for a screen or screens, press KEY 1, KEY 2, KEY 3, KEY 4, KEY 5, or KEY 6. The number corresponds to the output screen. Note that the output screen must be active in the Destination bus or the controller will ignore key presses for the screens that are not available.
3. To transition the “key/overlay” onto the main screen, the operator will press the AUTO TRANS key, press the CUT key, or use the T-BAR.
4. To adjust the Key Threshold, hold down the KEY # key for the screen you wish to adjust and use the joystick knob to select the desired threshold value, displayed on the VFD display.
5. If the operator presses the Auto Trans 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. To disable the Keying function, hold down the KEY # key and press the CLEAR KEY.
7. 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 Dissolve. After the transition, the key is disabled and the new source selection is made.

Keying settings can be saved to system presets, however keying can only be recalled to the Preview outputs.

When keying is active on a PROGRAM output screen, the corresponding KEY # key will flash.

When keying is active on a PREVIEW output screen, the corresponding KEY # key will be illuminated, but will not flash.

Picture in Picture is not available for outputs that have keying enabled. For example, if keying is enabled on Screen 3 (KEY 3), PIP 3 will not be available.

## Picture-In-Picture Operation

This section describes how to perform Picture-in-Picture effects using the PIP Functions.

This capability will allow the operator to seamlessly transition a (Picture-In-Picture) PIP over the top of the main output using any of the currently available transition effects. Below is a description of how to operate the PIP Functions:

1. Select the desired source as a picture-in-picture (PIP) and this source will be displayed on the preview monitor. This step can be performed on any of the Preview Screens as necessary.
2. To enable PIP for a screen or screens, press PIP 1, PIP 2, PIP 3, PIP 4, PIP 5, or PIP 6 which correspond to screens 1, 2 3, 4, 5, and 6 respectively. Note that the selected PIP key must have an associated output screen (ScreenPRO) configured or the controller will ignore the key press. The screen(s) chosen to be in PIP mode will automatically size to 50% of normal and will be placed in the upper left hand corner of the corresponding Preview screen.
3. To size and position the PIP, hold down the PIP # key for the screen you wish to adjust and use the XY-axis on the joystick to position the PIP and the joystick knob to size the PIP.
4. To transition the PIP onto the main screen, press the AUTO TRANS or CUT key. The T-BAR can be used as well.
5. Pressing the AUTO TRANS or CUT keys while the PIP image is on the main output caused the PIP to be transitioned off of main leaving the background image showing.
6. To return a PIP image to its normal size, hold down the PIP # key and press the CLEAR PIP key.
7. If the PIP is cleared while the PIP image is on the main output, the PIP is transitioned off immediately using a Dissolve and the image is returned to full size.
8. If any of the PROGRAM keys for a PIP output are pressed while a PIP is displayed on the PROGRAM output, the PIP is transitioned off immediately using a "Cut". After the transition, the new source selection is made.

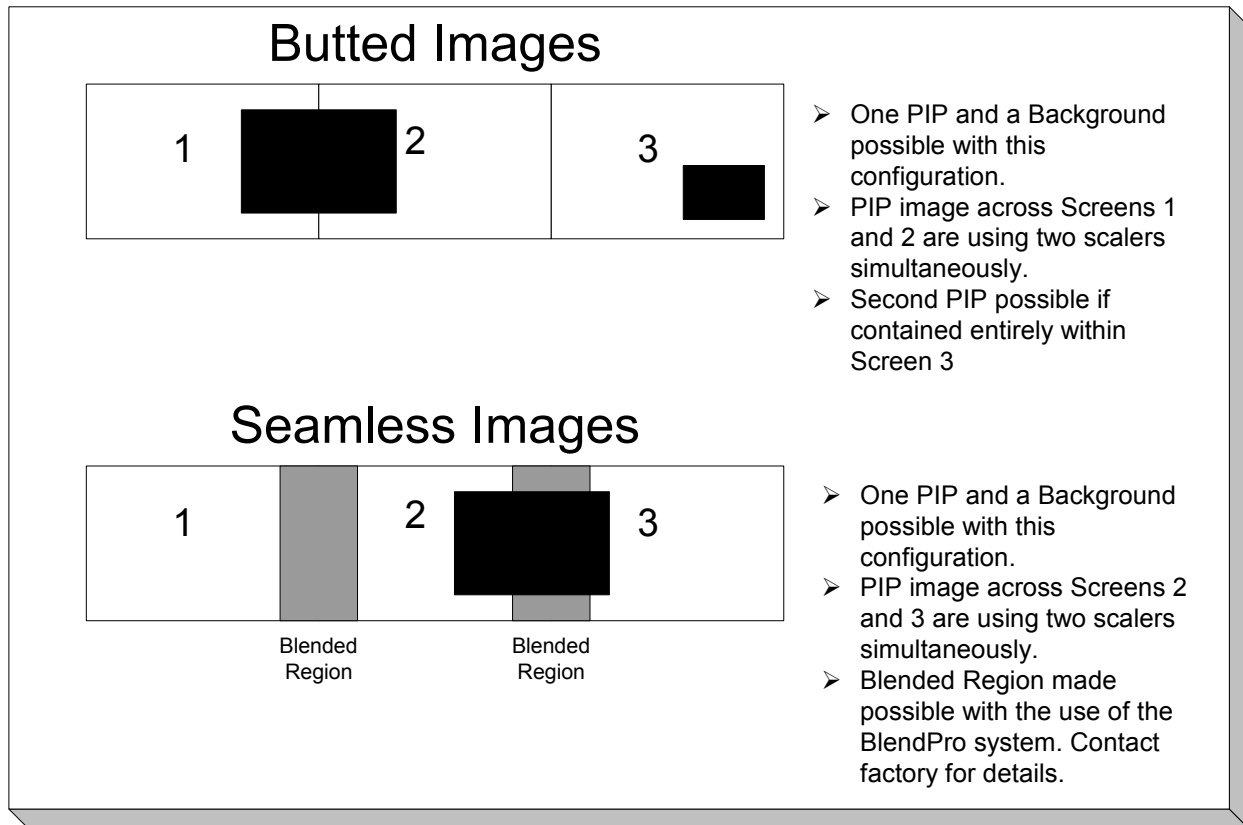
PIP settings can be saved using the PATTERNS keypad and recalled to any PIP Preview screen. System presets also can be configured to restore PIP information, however PIP recalls are only made to the Preview screens.

PIP is not available if keying is enabled on an output screen. For example, if keying is enabled on screen #3 (KEY 3), pressing PIP 3 would not be allowed.

## PIP LINK Operation

PIP Link allows a user to select several destinations and LINK them together. By doing so, any source can then be selected and moved or sized as if the linked destinations were one output. This feature is useful when creating butted or seamless projected images. PIP Link can be used to accomplish two types of effects. The first involves placing a PIP across two screens as shown in the example below for Screens 1 and 2. The second effect allows a single source to be sized to fill those destinations that are linked, effectively creating a background, which you can place other images over. All PIP Link activities are performed in the Preview Monitors. Once a “look” has been created, simply Learn a Preset and all settings relating the desired “look” will be saved for later recall.

**NOTE:** When referring to the “Butted Images” diagram below, be aware of the following. Since there are two scalars per screen, a PIP across a screen boundary uses all 4 scalars available. Consequently, PIPs can’t exist across Screens 1 and 2 as well as Screens 2 and 3 at the same time. However, you can place a PIP in Screen 3 provided it does not cross the boundary.



### To Create a Link:

- 1) Select the Destinations to be linked.
- 2) Press the PIP Link button.
- 3) A single PIP will appear in the center of the linked screens.
- 4) The X and Y-axis of the Joystick will move the image Horizontally and Vertically. The Z-axis of the Joystick will size the image to less than or greater than full screen.

The VFD will show the SIZE, V-CENTER and H-CENTER of the linked PIP in terms of percentages. If for example, screens 1, 2 and 3 were selected to be Linked, when H-CENTER and V-CENTER are 0.0%, this point refers to the exact center of Screen 2. A SIZE of 100% will make the image fill all three screens completely. Please note that when adjusting SIZE, proper aspect ratio is maintained. Therefore, your image will be cropped vertically as the picture begins to fill the linked screens. However, you can still move the image horizontally or vertically if you wish to look at certain portions of the image.

If a user wishes to distort the aspect ratio of the link, please refer to the *SYSTEM→DEFINE WINDOWS* section of the manual to make the adjustments on a screen-by-screen basis.

#### **To Disable Link Mode:**

- 1) Press the PIP Link button to turn this mode OFF.
- 2) At this point, the mode is disabled. However, the PIP will not be cleared. This must be manually done by using the CLEAR PIP key while holding a PIP # key.

**NOTE:** *It is essential that the Output Resolution of the Linked destinations be the same. This is due to the fact that all sizing and moving calculations are based on the output resolution. If the output resolutions differ, PIP alignment across multiple screens will not appear to be correct.*

#### **Please make note of the following when adjusting the Horizontal or Vertical size of a PIP.**

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:

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

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.

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

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.

*See also DEFINE WINDOW in the SYSTEM Configuration Section for information on defining a video WINDOW that is similar to PIP but allows a video source to be expanded across multiple output screens.*

### **Freeze Function Operation**

Three FREEZE control keys are available: CLEAR FREEZE, FREEZE PREVIEW, and FREEZE PROGRAM.

FREEZE PREVIEW will freeze the image on the currently selected Preview outputs for all active screens. Changing the Preview configuration, however, will remove the freeze condition.

FREEZE PROGRAM will freeze the image on the currently selected Program outputs for all active screens. Changing the Program configuration, however, will not remove the freeze condition from the Program outputs.

Press and hold the CLEAR FREEZE key and press and release the FREEZE PREVIEW or FREEZE PROGRAM key to cancel the freeze condition on the outputs.

Note that transitioning a frozen image from the Preview Output to a Program Output (or a Program Output to a Preview Output) will also transition the freeze state.

### **Black Program and Black Preview**

The BLACK PROGRAM and BLACK PREVIEW keys can be thought of as two additional video sources. The BLACK PROGRAM output can be assigned to any screen output the same way that an actual video source is assigned to an output screen. The same is true of the BLACK PREVIEW source. The button(s) will illuminate while selected. These sources may also be transitioned between Program and Preview. These sources can be cleared by selecting another video source for the output screen(s).

## File Mapping Tutorial

File mapping has been implemented to allow greater flexibility in how an operator can choose to use the ScreenPro Plus system. Up until this point, files were fixed in a one for one mapping scheme (i.e. Input 1 always recalled File 1, Input 2 always recalled File 2 and so on). For most situations, this is perfectly acceptable and the ScreenPro Plus Controller will continue to operate in this fashion provided no changes are made within the new FILE menu. The controller will default to this one for one mapping state after a RESET SPRO or RESET ALL has been performed.

Changing the file mapping from its default state becomes useful when an operator wishes to use multiple output resolutions during the same show. Lets say for example that Screens 1 and 3 will be running at 1024x768 (a 4:3 Aspect ratio) while Screen 2 is set for 1365x768 (a 16:9 Aspect ratio). Given this scenario, for every Input into the system you have, two files need to be created to support the different sizing requirements. The FILE button on the Configuration keypad now gives you the ability to tell the ScreenPro Plus system which file to recall per Input on a per Screen basis. Now, instead of having only 1 file per input to work with, the controller will allow you to associate any one of 64 files to any input on any screen.

As with anything, a little preplanning is in order whenever you choose to change the file mappings from the default state. Use the table below to help keep track of exactly what you want to do. Along the top of the table is the total number of screens you could have and along the side of the table are the total number of inputs you could have. In the remaining area of the table will be the FILE number you want the ScreenPro Plus to use whenever an Input source is selected.

In our example, we will only need the columns labeled Screen 1, Screen 2 and Screen 3. Also, lets assume that we will only have 4 sources. The areas that are grayed out can be left in the default state, which has been shown for informational purposes only.

	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5	Screen 6
Input 1	1	2	1	1	1	1
Input 2	3	4	3	2	2	2
Input 3	5	6	5	3	3	3
Input 4	7	8	7	4	4	4
Input 5	5	5	5	5	5	5
Input 6	6	6	6	6	6	6
Input 7	7	7	7	7	7	7
Input 8	8	8	8	8	8	8

To help in understanding what is going on in the un-shaded area, notice that the Screen 1 and Screen 3 columns are using the same file numbers. This is due to the fact that in this example, Screens 1 and 3 are set to the same output resolution. This being the case, they can both use the same file for each particular input. For Screen 2, unique numbers have been chosen for every input since this screen will be running at a different output resolution. Here are some general rules to follow when choosing file numbers:

- 1) Never use the same file number(s) between Inputs.

In the example above, within the un-shaded area, Input 1 is using Files 1 and 2. These files should not be used for any other Input source.

- 2) Screens that are set to the same output resolution should always call the same file number chosen for a particular input.

In the example above, for Input 1, File 1 is being used for Screen 1 and Screen 3 since both of these screens will be running at 1024x768.

**NOTE:** This rule is only mentioned to help keep the number of files that need to be created at minimum. It is by no means a requirement though. You could easily have a unique file number associated with every Screen / Input combination, provided you don't need more than 64 files.

3) Don't worry about changing the mapping for any unused Screens or Inputs.

In the example above, the shaded area is set to the default standard. Since we don't have Screens 4, 5 and 6 along with Inputs 5 – 8 at our disposal, we won't bother to change these entries.

Now that we have an idea of how we wish to map the input files to the Screens and Sources, go into the FILE menu and modify the entries per your plan. When using this menu, note that the first field is Screen that you will be modifying. Use the UP and DOWN arrow keys to traverse the fields and Twist the Joystick to select the file number or Screen number required for your situation. You can also use the ON/+ and OFF/- keys to change the numbers for any given field.

Once the file mapping has been entered into the controller, you can proceed to create the files in the INPUT menu.

**NOTE:** Before proceeding, make sure the Output Screens are set to the resolution desired for your application. Use the OUTPUT menu to confirm or make changes to these settings.

For this example, the steps for adjusting Input 1 will be described. Simply repeat these steps for the remaining Inputs.

Within the INPUT menu, you will see that the first field is labeled "PREVIEW SCREEN". This allows you to select which screen to make your input adjustments on. To begin, make sure that this field is set to "1". Proceed as normal to make your adjustment on Screen 1 for Input 1. Both the manual sizing adjustment or the AUTOCONFIG within the ADVANCED menu can be used.

Once the input has been adjusted as required, simply press the SAVE button on the Configuration keypad to save the settings. Since you are currently on PREVIEW SCREEN 1, the controller will save your setting to FILE 1 and copy this file to all of the Graphics cards installed in the system. The controller knows to save the setting to FILE 1 since the FILE mapping menu was set for this.

While still keeping Input 1 selected, change the PREVIEW SCREEN field to 2. Now you can start the sizing process again for this input, however you need to look at preview screen 2 to see how your changes are affecting the source material. Once you are satisfied with the look of the image, simple press the SAVE button on the Configuration keypad. At this point, the controller will save your settings to FILE 2 and copy the file to the entire set of Graphics cards. Like before, the controller knows to use FILE 2 because that is what the FILE mapping menu was set to prior to modifying the input.

Given the example for this tutorial, you can now repeat the above process for the remaining input sources.

**A NOTE ABOUT SAVING FILES:** Saving a file can be accomplished via one of several methods. Whenever you are in any of the INPUT menus and you make a change to a particular field, saving the change can be done by hitting the SAVE button on the configuration keypad or by scrolling down to the SAVE CONFIG field and pressing the ON/+ key. The only exception to this is when AUTOCONFIG is used. This process automatically sizes the image for 1:1 Sampling and saves the file. However, if any other items are modified in the input menu after this process, simply press the SAVE button to save the changes.

Another feature that has been added to the input menu is the SAVE AS field. This field will allow you to select a file number and create a unique name for your file. This can be done before or after the saving methodologies described in the above paragraph. As before, whenever a file is saved, it will be copied to all other installed Graphics cards whether or not you intend for that card to use the file.

# CHAPTER FOUR

## Software Upgrade Instructions

What you will find in this chapter...

- *Software Upgrade Instructions*
- *Programming the Controller*

Model FC-0608  
ScreenPRO Multi-Screen Remote Controller

# Software Upgrade Instructions

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## Overview

The ScreenPro remote controller and the ScreenPro units incorporate the system software in a Flash memory component. Flash memory allows easy upgrades without the need to send the unit back to the factory due to software 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-9 male connector on one end)

## Software Requirements

- \* Window 95/98/NT/2000
- \* Flash File Loader
- \* SCREENPRO Software files
- \* Folsom Research Controller Software files

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

## Connecting to Folsom Research

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

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

## Downloading Necessary Files

ScreenPro Software Files and Flash File Loader

**Directory Location:** ftp://ftp.folsom.com\ Products \ Video \ SPR2000 \ FC\_0608 Controller

**File to download:** "SP\_SPP\_Rev###\_###.exe"

## Installing ScreenPro Remote, ScreenPro's Software Files and Flash File Loader

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

- 1) Click on the Start button and select Run.
- 2) Click on the Browse button and locate the "SP\_SPP\_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.

**\*\*\* NOTE: Before proceeding, do the following: \*\*\***

- 1) Power on the remote controller unit.
- 2) Wait for the controller to finish booting.
- 3) Press the SYSTEM key on the Configuration Keypad.
- 4) Press the Down Arrow key to highlight SOFTWARE VERSIONS and press the → (Right Arrow) key.

If the VFD shows <-SYSTEM SW VER 1.00, you must do the following (otherwise skip to the section titled "**Starting the Controller Flash File Loader Utility**")

**\*\*\*BEGINNING OF SPECIAL INSTRUCTIONS\*\*\***

**Overview**

Starting with version 2.00 of the Controller Software, the buttons to the right of the T-Bar were redefined in order to add enhanced capabilities to the system. If you have version 1.00 of the Controller software, please follow the instructions below. If you have version 2.00 or above, skip this section and proceed to the section titled “Starting the Flash File Loader Utility”.

**Procedure**

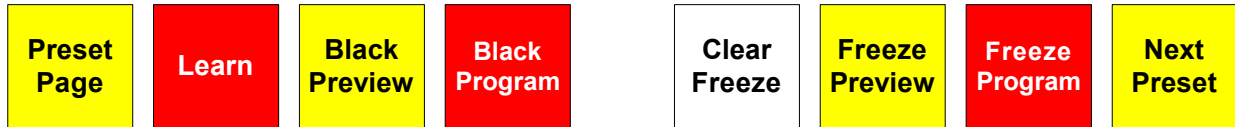
1. Contact Folsom Research, Inc. by dialing:

Toll Free: 1-888-414-SCAN (7226) or  
Phone Number: (916) 859-2500

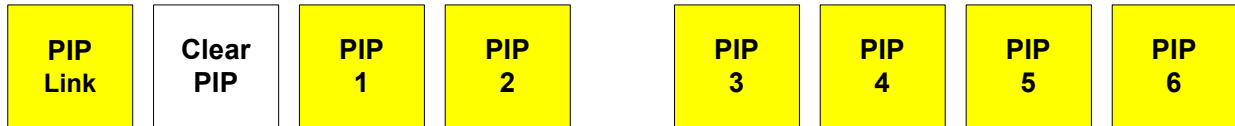
2. Ask to speak with a Customer Service Representative and request an RMA number.
3. Please have your system serial number ready to give to our personal.

Upon receipt of your Controller, the system software will be upgraded to the current production release revision and the Keyboard layout to the right of the T-Bar will change to look like the diagram below. Performing this upgrade is highly recommended as Version 2.00 and above will no longer support the old keyboard layout.

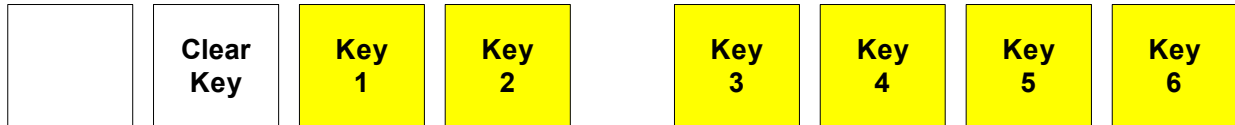
**Functions**



**PIP Functions**



**Key Functions**



**Group Functions**



**Transition**



**\*\*\* END OF SPECIAL INSTRUCTIONS \*\*\***

## Starting the Controller Flash File Loader Utility

- 1) After the files have been installed the ScreenPro Flash File Loader can be selected to run.
- 2) Click on the Start button and select Programs.
- 3) Find the Folsom Research folder and select SP and SPP with Controller Loader.

## Preparing to Upgrade the ScreenPro Unit and Controller

- 1) Plug the DB-9 male connector into the port labeled "CONSOLE" on the back of the Remote Controller unit.
- 2) Make sure the other end of the cable is attached to the available COM port on the back of the computer performing the upgrade.
- 3) In the loader program, click on the RS232 Config menu and select COM Port.
- 4) In the Communication Settings window, select the COM port the ScreenPro Remote Controller is attached to by clicking on the appropriate COM # choice.
- 5) The ScreenPro Remote Controller defaults to a baud rate of 57600 baud (57.6K).

## Verifying Communications between the Computer and ScreenPro Remote Unit

**Note:** Turn on and set up the ID(s) for the ScreenPro unit(s) in the EXT CONTROL submenu contained in the MISC Menu. Make sure a 25pin straight-through cable is attached between the Controller and the ScreenPro system.

- 1) Turn the ScreenPro Controller ON or do a power cycle if it was previously powered on and wait for it to boot.
- 2) Note that the DCD and the CTS lights will be RED after you turn on the Controller.
- 3) If communications is established, the terminal window will display various messages and finally end with:

CTRLR>

- 4) Back at the Controller display screen, make sure the correct number of screens is listed under the SCN label. If the wrong number of screens is listed, power cycle the ScreenPro Remote Controller and all attached ScreenPros. Wait for the ScreenPros to boot completely. Verify the cable(s) between the ScreenPro(s) and check that their IDs are setup. Now power cycle the Controller and see if the correct number of screens is listed.
- 5) If any of the communication parameters are changed within the loader, it is recommended that the ScreenPro Remote Controller unit be powered cycled and the verification process started over.

## Uploading Files to the ScreenPro Unit

- 1) Once communications have been established and verified, click on the “Open SCR file to read and upload” button to begin the upgrade process.
- 2) Browse to the location where the “**loader.scr**” file is located and click on it. Then click on “Open” to start transferring the files to the controller.
- 3) A TRANSFER STATUS box will open and show the status of the upload as it progresses. On the controller, the VFD will also show the status of the files being uploaded.
- 4) After several minutes, the loader utility will inform the user that the process is complete.
- 5) At this point, direct your attention to the Controller where you will see it Relaying files to the ScreenPro. Wait for this process to complete.
- 6) Once this is done, it is recommended that the entire system be powered cycled. You can also close the loader utility at this time.
- 7) Verify the new software is in the system by looking for the version numbers in the SYSTEM→SOFTWARE VERSION→VERSIONS menu. Make sure that the "Bx" which is installed in your system shows the same version number, where “B” is for graphics board and “x” is the screen ID number.
- 8) Once you have verified the version number, it is recommended that a factory reset be performed. This is done by going to the SYSTEM menu and selecting RESET ALL.

## \*\*\*BEGINNING OF SPECIAL PROGRAMMING INSTRUCTIONS\*\*\*

### Programming the Controller via HyperTerminal

If for some reason the Flash File loader fails to perform correctly, the following procedure can be used to upgrade the Controller. While it is not anticipated that this procedure will ever have to be used, it is provided here as an alternative way to program the Controller. The Flash File Loader will still be required to update the ScreenPros.

### Requirements

(1) 9 pin Serial Cable (F-M) wired pin 1 to pin 1 must be connected from PC COM port connector to CONSOLE connector on controller.

### Procedure

- Set Communication Parameters
- Start HyperTerminal
- Select File-New Connection
- Name SP Controller Loader
- Direct to COMM port selection
- 57600 baud
- 8 Data bits
- 1 Stop bit
- NO parity
- Flow control = NONE

**Note:** By saving the HyperTerminal File these settings will not have to be made again.

### Entering Code Loader Program:

- 1) Power the remote control unit ON and wait for it to complete the booting process.
- 2) In the HyperTerminal Window, press ESC to terminate the application program.
- 3) At this point within the HyperTerminal Window, the LOADER> prompt will be displayed. The controller display will show that it is "READY TO RECEIVE DATA"

**Note:** If the description above does not occur, please skip to step 5 below.

- 4) In the HyperTerminal Window, type TERM and press Enter. Please note that the window will not show the letters as they are typed.
- 5) The B:\> prompt should now be displayed.
- 6) Verify MAINAPP.EXE is not on this drive. To do this, type "DIR" and press Enter. If MAINAPP.EXE shows in the file listing, type "DEL MAINAPP.EXE" and Press Enter.
- 7) Type "UP STARTUP.BAT" and press enter. The controller is now waiting to receive a file. A "C" is periodically sent to the output window by the controller to indicate that it is waiting for a file. If you take too long to begin the file transfer, the controller will quit the upload command. If this happens, do the following:
  - a) At the B:\> prompt, type DIR and press Enter.
  - b) You will see a listing of files on the B:\ drive.
  - c) STARTUP.BAT will be one of the files in the list and it will have a file length of zero (0).
  - d) At the B:\> prompt, type "DEL STARTUP.BAT" and press Enter.
  - e) Now type, "UP STARTUP.BAT" and press Enter
  - f) Continue with **(Step 8 for STARTUP.BAT) | (Step 12 for MAINAPP.EXE) | (Step 15 for FC\_LDR.EXE)** if "C" starts to be periodically sent out, otherwise go to step 7.f.i below.
    - i. If the controller fails to display "C"s on the output or fails to communicate with the XMODEM transfer you must do the following:
    - ii. Set the baud rate in HyperTerminal to 9600 BAUD. All other settings listed above will stay the same. After making the change, be sure to go to the Call menu and select DISCONNECT and then CONNECT.
    - iii. Cycle power on the controller and at the same time; repeatedly press CTRL-C on the keyboard.

- iv. After a few seconds, several messages will appear and will end with the A:\> prompt.
  - v. Type B: (or C: if working with MAINAPP.EXE or FC\_LDR.EXE) and press Enter.  
Continue with step (7.a) above.
- 8) In HyperTerminal, Select Transfer-Send File. Browse to STARTUP.BAT (binary upload file). Select Xmodem in the protocol box. Click Send. The file is now being sent to the controller.
  - 9) Once the upload of STARTUP.BAT is complete, press ENTER a couple of times and the B:> prompt should be displayed in the terminal window.
  - 10) Type "C:" and press ENTER. The C:> prompt should be displayed in the terminal window.
  - 11) Type "UP MAINAPP.EXE" and press ENTER. The controller is now waiting to receive this file.
  - 12) Select Transfer-Send File. Browse to MAINAPP.EXE. Select Xmodem in the protocol box. Click Send. The file is now being sent to the controller. If the transfer fails for some reason, go to step 7.a and replace the STARTUP.BAT reference with MAINAPP.EXE and the B:\> reference with C:\>. Otherwise, continue with the next step.
  - 13) Once the upload of MAINAPP.EXE is complete, press ENTER a couple of times and the C:> prompt should be displayed in the terminal window.
  - 14) Type "UP FC\_LDR.EXE" and press ENTER. The controller is now waiting to receive this file.
  - 15) Select Transfer-Send File. Browse to FC\_LDR.EXE. Select Xmodem in the protocol box.
  - 16) Click Send. The file is now being sent to the controller. If the transfer fails for some reason, go to step 7.a and replace the STARTUP.BAT reference with FC\_LDR.EXE and the B:\> reference with C:\>. Otherwise, continue with the next step.
  - 17) Upload Complete. HyperTerminal will indicate the upload is complete when the send file dialog box disappears.
  - 18) Run New Code by cycling power on the controller. You can verify the version number in the System→SOFTWARE VERSIONS→VERSIONS menu as well as by noting the version number on the VFD's startup screen. This version number should be 2.00 or above.

**\*\*\* END OF SPECIAL PROGRAMMING INSTRUCTIONS \*\*\***

# Chapter FIVE

## External Remote Control Protocol

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

- *Serial Parameters*
- *Console Port (DB-9) Pin-out*
- *Protocol Specification*
- *Serial Remote Commands*

Model FC-0608  
*ScreenPRO Multi-Screen Remote Controller*

# Serial Command Syntax Specification

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## Serial Parameters

The following are the default parameter settings for serial communication.

- Baud Rate is 57600 baud.
- Parity is NONE.
- Stop Bit is 1.
- Data Bit is 8.
- Echo is ON
- Flow Control is NONE

**Note:** *The above items (except Flow Control) can be changed in the SYSTEM->CONFIG SERIAL menu.*

## Console Port (DB-9) Pin-out

(The controller is configured as a DCE device without flow control signals.)

- PIN 2    RxD
- PIN 3    TxD
- PIN 7    SIGNAL GROUND

## Protocol Specification

The Controller will respond with a 'CTRLR>' 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 Controller 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 arguments except for the last argument in the chain.

A required argument is one that is enclosed in square ( [ ] ) brackets. An optional argument is one that is enclosed in less-than-greater-than sign ( < > ) brackets. As an example, we will consider the following command:

KEY [screenNum] [mode] <threshold>

With the notations used, we can easily tell that screenNum and mode are required parameters while the threshold is optional.

All commands **must** be terminated with a carriage return (ASCII 13). The carriage return will tell the command processor to begin execution of the command. From hereafter, when we refer to a command, we will assume that a <CR> is always present at the end of the command line even though it's not explicitly written out.

If the command is not recognized as a valid command, a "?<CR><LF>" is returned. A new line will be generated and the prompt will indicate the system is ready for a new command.

For an on-line list of available commands and its brief description, type **HELP** or ? at the prompt.

For an on-line detailed help for a particular command, type the command name followed by a ?. For example, to get help for the **TRNSETUP** command, type **TRNSETUP ?** at the prompt.

If a command is recognized as valid but the parameter list is somehow incorrect, an “!ERR\_#<CR><LF>” is returned to indicate an error. The # will have a numeric value that specifies the type of error. After this line is sent out the prompt will be returned to indicate the system is ready for a new command.

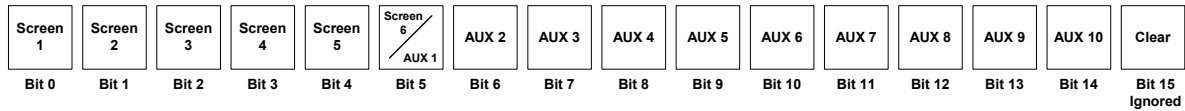
#### **Error Codes**

- 1 - Insufficient number of arguments supplied.
- 2 - At least one of the arguments is invalid (out-of-range value).
- 3 - Checksum error, specific to the PASS command only.
- 4 - No reply from BlendPro, specific to the BPQUERY command only.
- 5 - Requested preset doesn't exist.

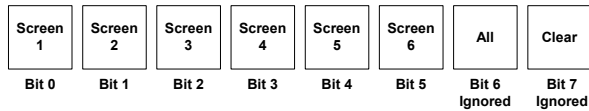
## Destination Selection

Certain commands listed below require the selection of Screen and/or AUX destinations. The operand will be listed in the command as “ddd”. This represents a maximum of 4 hexadecimal digits, which is a 16-bit value. While this is what the operand represents, the operand must be embedded into the command string as standard ASCII characters. The bits map to the Screens and AUXs as shown in the figure below.

Destination Bus for FC-0616



Destination Bus for FC-0608



### Bit Mapping for FC-0616 & FC-0608 Destination Bus

To select a destination, place a 1 in the bit location that corresponds to the Screen or AUX you wish to use. Place a 0 in all other bit locations. Once you have the binary bit string, convert this binary value to a hexadecimal value. Use this value in the command where “ddd” is specified.

NOTE: Some bits are ignored as shown in the examples below. Place a 0 in these locations.

BINARY b <sub>3</sub> b <sub>2</sub> b <sub>1</sub> b <sub>0</sub>	HEX
0 0 0 0	0
0 0 0 1	1
0 0 1 0	2
0 0 1 1	3
0 1 0 0	4
0 1 0 1	5
0 1 1 0	6
0 1 1 1	7
1 0 0 0	8
1 0 0 1	9
1 0 1 0	A
1 0 1 1	B
1 1 0 0	C
1 1 0 1	D
1 1 1 0	E
1 1 1 1	F

Binary to Hex Conversion Table

### Example for FC-0616 Controllers:

Suppose you want Screen 1, 2 and 4 along with AUX 3 and 4 to be affected by a certain command. The figure below shows how to create the binary value. Using the Conversion Table above, convert the binary value to hex.

**NOTE:** Read the Bit locations from RIGHT to LEFT in order to obtain the correct binary value to convert to hex.

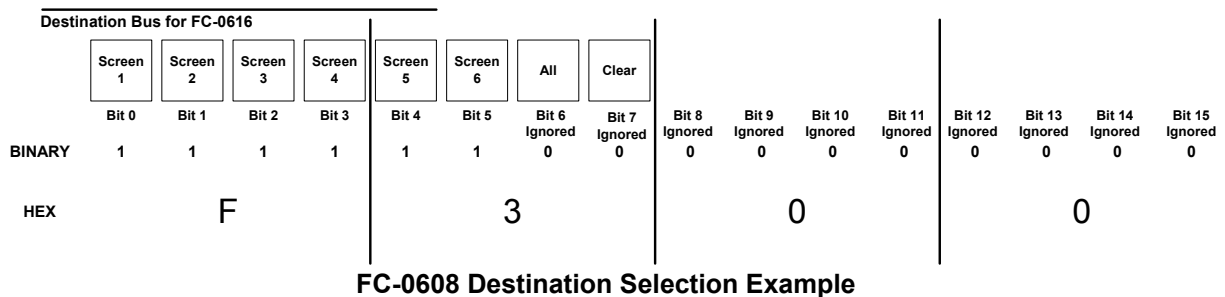


NOTE: Depending on the number of screens your system has, certain AUX selections will not be available. If you choose an AUX that is not available, the system will simply ignore that particular AUX selection.

### Example for FC-0608 Controllers:

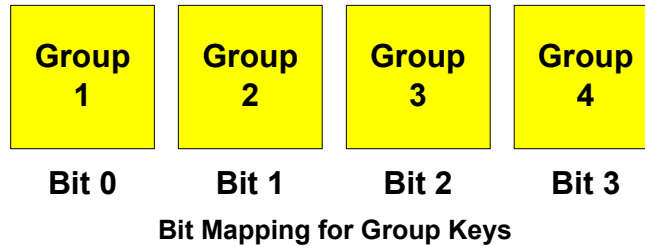
Suppose you want Screen 1, 2, 3, 4, 5 and 6 to be affected by a certain command. The figure below shows how to create the binary value. Using the Conversion Table above, convert the binary value to hex.

**NOTE:** Read the Bit locations from RIGHT to LEFT in order to obtain the correct binary value to convert to hex.



### Group Selection

Certain commands listed below require the selection of Groups. The operand will be listed in the command as “g”. This represents a 1-digit hexadecimal code, which is a 4-bit value. While this is what the operand represents, the operand must be embedded into the command string as a standard ASCII character. The bits map to the GROUP keys as shown in the figure below.

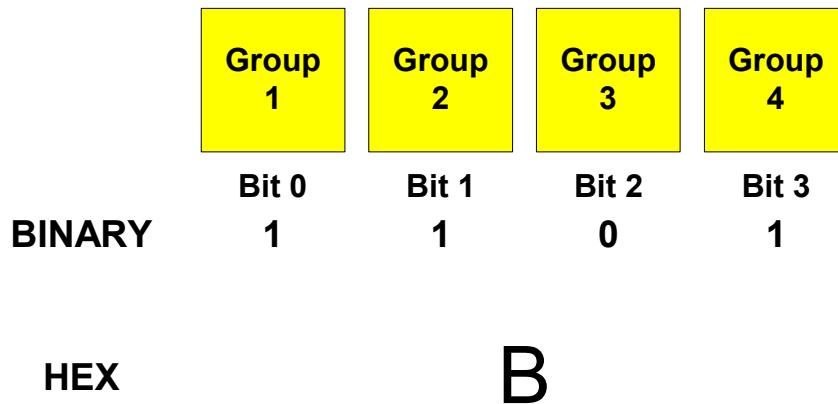


To select a group combination, place a 1 in the bit location that corresponds to the Groups you wish to use. Place a 0 in all other bit locations. Once you have the binary bit string, convert this binary value to a hexadecimal value. Use this value in the command where “g” is specified.

### Example for Group Selection

Suppose you want Group 1, 2, and 4 to be selected. The figure below shows how to create the binary value. Using the Conversion Table above, convert the binary value to hex.

**NOTE:** Read the Bit locations from RIGHT to LEFT in order to obtain the correct binary value to convert to hex.



## Key Press & Key Release Commands

The following commands allow a program to emulate an operator pressing keys on the keyboard.

The KP command acts as if a user has pressed the key and is holding the key down. A program can then issue another Key Press command or issue a Key Release command for the key that is being held down. For every KP command issued to the controller, make sure a Key Release command is issued at some point, otherwise that key will remain in a pressed condition.

The KR command performs a Key Release for the key specified. If a KP command has been issued for a particular key, use the KR command to release that key.

The KPR command performs a Key Press followed immediately by a Key Release. This command should be used for the majority of actions required from the controller. For the following keys, the KPR command will not have an effect since these keys need to be held down while another key is pressed.

LEARN (Row 4, Key 18)  
CLEAR FREEZE (Row 4, Key 21)  
CLEAR PIP (Row 3, Key 18)  
CLEAR KEY (Row 2, Key 18)

## Example of the Key Press and Key Release Commands

To see how these special keys work, let's assume that PIP is enabled on Preview for Screen 1 and Screen 2. To Clear the PIP on Preview for Screen 1 and Screen 2, the following commands would be sent to the controller:

- 1) KP 3 18<CR> This will press and hold the CLEAR PIP key.
- 2) KPR 3 19<CR> This will press and release the PIP 1 key which will clear the PIP on Preview Screen 1.
- 3) KPR 3 20<CR> This will press and release the PIP 2 key which will clear the PIP on Preview Screen 2.
- 4) KR 3 18<CR> This will release the CLEAR PIP key.

## Keyboard Map

The “Key Press (KP)”, “Key Release (KR)” and “Key Press and Release (KPR)” commands require a Row and Key number parameters. The following illustrations show the how to determine the Row and Key numbers for these commands. Please note that since the FC-0608 is essentially a subset of the FC-0616 keyboard, KEY 9 through KEY 16 in ROW 1 through ROW 4 will be ignored by the KP, KR and KPR commands when executed on a FC-0608 controller.

Patterns				Configuration				
ROW 7					INPUT	OUTPUT	SYSTEM	FILE
ROW 6	REV	MULTI	MULTI	USER RATE	- / OFF	↑	+ / ON	CANCEL
ROW 5	PIP A	PIP B	PIP C	PIP D	←	↓	→	SAVE
	KEY 1	KEY 2	KEY 3	KEY 4	KEY 5	KEY 6	KEY 7	KEY 8

Presets																Functions								
ROW 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Preset Page	Learn	Black Preview	Black Program	Clear Freeze	Freeze Preview	Freeze Program	Next Preset
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32								
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48								
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64								

Destination																PIP Functions								
ROW 3	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5	Screen 6 / AUX 1	AUX 2	AUX 3	AUX 4	AUX 5	AUX 6	AUX 7	AUX 8	AUX 9	AUX 10	Clear	PIP Link	Clear PIP	PIP 1	PIP 2	PIP 3	PIP 4	PIP 5	PIP 6

Program																Key Functions								
ROW 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Clear Key	Key 1	Key 2	Key 3	Key 4	Key 5	Key 6

Preview																Group Functions				Transition				
ROW 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Group 1	Group 2	Group 3	Group 4	Wipe	Mix	CUT	AUTO TRANS

KEY																KEY								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

FC-0616 Keyboard Map

Patterns				Configuration				
ROW 7					INPUT	OUTPUT	SYSTEM	FILE
ROW 6	REV	MULTI	MULTI	USER RATE	- / OFF	↑	+ / ON	CANCEL
ROW 5	PIP A	PIP B	PIP C	PIP D	←	↓	→	SAVE
	KEY 1	KEY 2	KEY 3	KEY 4	KEY 5	KEY 6	KEY 7	KEY 8

Presets								Functions								
ROW 4	1	2	3	4	5	6	7	8	Preset Page	Learn	Black Preview	Black Program	Clear Freeze	Freeze Preview	Freeze Program	Next Preset
	9	10	11	12	13	14	15	16								
	17	18	19	20	21	22	23	24								
	25	26	27	28	29	30	31	32								

Destination								PIP Functions								
ROW 3	Screen 1	Screen 2	Screen 3	Screen 4	Screen 5	Screen 5	All	Clear	PIP Link	Clear PIP	PIP 1	PIP 2	PIP 3	PIP 4	PIP 5	PIP 6

Program								Key Functions								
ROW 2	1	2	3	4	5	6	7	8		Clear Key	Key 1	Key 2	Key 3	Key 4	Key 5	Key 6

Preview								Group Functions				Transition				
ROW 1	1	2	3	4	5	6	7	8	Group 1	Group 2	Group 3	Group 4	Wipe	Mix	CUT	AUTO TRANS

KEY								KEY								
	1	2	3	4	5	6	7	8	17	18	19	20	21	22	23	24

FC-0608 Keyboard Map

# Serial Remote Commands

---

<b>ATRN</b> <G=[g] D=[dddd]>	Performs an auto transition on the destinations or groups if specified. If not, the operation will be applied to all currently active destinations.
<b>BPQUERY</b> [BP query command]	Queries BlendPro for raw binary data.
<b>FSB</b> [dddd] [bus]	Forces program or preview bus of the selected screens black.
<b>FZ</b> [dddd] [bus] [mode]	Freezes/Unfreezes program or preview for selected screens.
<b>GA</b> [groupNum] [dddd]	Assigns specific destinations to a group.
<b>HELP</b> or ?	Displays the available commands and brief description.
<b>KEY</b> [sn] [mode] <threshold>	Luminance keying control for a particular screen at a given threshold.
<b>KP</b> [row#] [key#]	Emulates a key press.
<b>KPR</b> [row#] [key#]	Emulates a key press and an immediate key release.
<b>KR</b> [row#] [key#]	Emulates a key release.
<b>NBP</b>	Displays the number of BlendPros and their RS485 IDs.
<b>PASS</b> [RS485 command] [checksum]	Pass the RS485 command to the RS485 port when there's no checksum error.
<b>RE</b> [user preset file #]	Recall the specified user preset file followed by an auto transition.
<b>RP</b> [user preset file #]	Recall the specified user preset file.
<b>SD</b> [dddd]	Select destination(s) as indicated by the destination bitmap.
<b>SG</b> [g]	Select group(s) as indicated by the group bitmap.
<b>SI</b> [dddd] [bus] [source #]	Select a preview or program input source for the specified destinations.
<b>TRNSETUP</b> [[type]=[value]]	Transition parameters setup.

## Controller Serial Command List/Description

### Auto Transition

**ATRN** <G=[g] | D=[dddd]>

Description:

Performs an Auto Transition on the destinations or groups if specified. If NOT, the operation will be applied to the currently selected destinations. The currently selected Effect type, rate, and edge width will be used to transition preview to program. See the TRNSETUP command for changing the transition rates, type, and edge width.

Parameters:

The argument to this command is optional and is used to either select a set of groups or destinations. For group selection, set the argument to **G=[g]**, where g is the group bitmap. For destination selection, set the argument to **D=[dddd]**, where dddd is the destination bitmap.

Example:

<b>ATRN</b>	Transition Preview to Program on currently selected destinations.
<b>ATRN G=3</b>	Transition Preview to Program on those destinations defined by Groups 1 and 2.
<b>ATRN D=000B</b>	Transition Preview to Program on Screens 1, 2, and 4.
<b>ATRN D=3C</b>	Transition Preview to Program on Screens 3, 4, 5, and 6.

### BlendPro Query

**BPQUERY** [BP query command]

Description:

Queries a BlendPro for raw binary data. The controller will transmit everything contained in the argument field to the RS485 port, then waits for a reply. Data validation is done on the response, and if there was no data corruption, the raw binary data will be sent back to the originator. If no response is received or there was data corruption, controller will retry this operation 3 times before giving up.

Parameters:

The argument to this command is a BlendPro RS485 query command. Please refer to the BlendPro user's manual for available commands and format.

Example:

BPQUERY \*4YINFOBP!

### Force Screen Black

**FSB** [dddd] [bus]

Description:

Forces the selected screens' Program or Preview black. To "unblack" a screen, use the **SI** command to select an input source.

Parameters:

[dddd] – bitmap of selected screens, maximum of 4-Hex digits  
[bus] – bus selection, **V** or **P** = Preview, **G** or **M** = Program (Main)

Example:

FSB 3 V            Preview screens 1 & 2 will go Black.  
FSB F M            Program/Main screens 1, 2, 3, and 4 will go black.

### Freeze Screen

**FZ** [dddd] [bus] [mode]

Description:

Freezes or unfreezes the program or preview bus of a particular set of screens.

Parameters:

[dddd] – bitmap of selected screens, maximum of 4-Hex digits  
[bus] – bus selection, **V** or **P** = Preview, **G** or **M** = Program (Main)  
[mode] – 0 = Unfreeze the image. 1 = Freeze the image

Example:

FZ 0003 G 1        Freeze Screens 1 and 2 on Program.

### Group Assign

**GA** [groupNum] [dddd]

Description:

Assigns a specific set of destinations to a particular group.

Parameters:

[groupNum] – The group number the destinations are to be assigned to. Range is 1-4, inclusive.  
[dddd] – bitmap of selected destinations, maximum of 4-Hex digits

Example:

GA 4 0005        Assigns screens 1 and 3 to group 4.  
GA 1 30          Assigns Aux 1 & screen 5 to group 1, assuming we have a 5-screens system.

### Key Screen

**KEY** [sn] [mode] <threshold>

Description:

Enables/Disables luminance keying option for a particular screen at a given threshold. If Keying is unavailable due to PIP being enabled on that screen, the command will be ignored. If the keying threshold is not specified, the current threshold value of the screen of interest will be used.

Parameters:

[sn]                – Screen number on which to enable or disable keying. Range is 1-6.  
[mode]              – 0 = Keying Off, 1 = Keying On.  
<threshold>        – Luminance Keying Threshold. Range is 0-100. Optional.

Example:

KEY 2 1 18        Turns screen 2 keying on, and sets the threshold to 18.  
KEY 2 0            Turns Screen 2 Keying Off.

## Key Press

**KP** [row#] [key#]

Description:

Emulates a key press. See the “Key Press & Key Release Commands” section above for a more complete description. See the “Keyboard Map” section above for Row and Key number locations.

Parameters:

[row#] – Key row number, ranges from 1-7.

[key#] – Key number within the row specified. Range is 1-24 for an FC-0612 and an FC-0616. For an FC-0608, range is 1-8 and 17-24.

Example:

KP 4 18            Press and hold the preview LEARN key.

## Key Press and Release

**KPR** [row#] [key#]

Description:

Emulates a key press and an immediate key release. See the “Key Press & Key Release Commands” section above for a more complete description. See the “Keyboard Map” section above for Row and Key number locations.

Parameters:

[row#] – Key row number, ranges from 1-7.

[key#] – Key number within the row specified. Range is 1-24 for an FC-0612 and an FC-0616. For an FC-0608, range is 1-8 and 17-24.

Example:

KPR 1 2            Press and release the Preview Input 2 key.

## Key Release

**KR** [row#] [key#]

Description:

Emulates a key release. See the “Key Press & Key Release Commands” section above for a more complete description. See the “Keyboard Map” section above for Row and Key number locations.

Parameters:

[row#] – Key row number, ranges from 1-7.

[key#] – Key number within the row specified. Range is 1-24 for an FC-0612 and an FC-0616. For an FC-0608, range is 1-8 and 17-24.

Example:

KR 2 18            Release the preview LEARN key.

## BlendPros & IDs

**NBP**

Description:

Displays the number of BlendPros detected and their RS485 IDs. The maximum number of BlendPros allowed is 2. The format of the response is fixed and is as follows:

[# of BlendPros] [ID\_1] [ID\_2]

Example:

If there's no BPs detected, the response would be **0 0 0**

If there's one BP in a 4-screens system, the response would be **1 5 0**

If there are two BPs in a 6-screens system, the response would be **2 7 8**

### Pass An RS485 Command

**PASS** [RS485 command] [checksum]

Description:

Simply passes the specified RS485 command to the RS485 port when there's no checksum error. Please note that the controller is completely oblivious about the command being sent. Thus, if you effect a crucial sub-system setting via this method, the controller will not be able to reflect this. Please refer to the SP/SPP User's Manual and the BlendPro's User's Manual for the available RS485 commands.

Parameters:

[RS485 command] – RS485 command to pass to the RS485 port. Format depends on the target subsystem.  
[checksum byte] – Checksum byte of the RS485 command, maximum of 2-Hex digits.

Example:

PASS \*1FSB 1 P! 18 If the command line is received error-free, the command will be passed on to the RS485 port.

### Recall and Execute

**RE** [user preset file #]

Description:

Recalls the specified user preset file to preview, then an AUTO TRANS is performed to transition the preview to program. Please note that there's a short delay from the time the file is recalled to the time an auto transition begins. This delay is to allow the scalers to lock to the new input sources and varies according to the input source type.

Parameters:

[user preset file #] – 1 to 32 for FC-0608, 1 to 64 for FC-0612 and FC-0616.

Example:

RE 12 Recalls user preset 12 to preview, then transition preview to program.

### Recall Preset

**RP** [user preset file #]

Description:

Recalls the specified user preset file to preview.

Parameters:

[user preset file #] – 1 to 32 for FC-0608, 1 to 64 for FC-0612 and FC-0616.

Example:

RP 8 Recalls user preset 8 to preview.

### Select Destination

**SD** [dddd]

Description:

This command selects a set of destinations (screens and auxes). Note that this will clear (de-select) all groups and destinations first. See "Destination Selection" section above for a detailed description on how this works.

Parameters:

[dddd] – Destination selection bitmap, maximum of 4-Hex digits.

Example:

SD F Selects Screens 1, 2, 3 and 4  
SD 00EF Selects Screens 1, 2, 3 and 4 along with AUXs 1, 2 and 3

## Select Group

**SG** [g]

Description:

This command selects a set of groups. See “Group Selection” section above for a detailed description on how this works.

Parameters:

[g] – Group selection bitmap, 1-Hex digit.

Example:

SG A Selects GROUPS 2 and 4  
 SG F Selects GROUPS 1, 2, 3, and 4

## Select Input

**SI** [dddd] [bus] [src #]

Description:

This command selects a preview or program input source for the specified destination.

Parameters:

[dddd] – bitmap of selected destinations, maximum of 4-Hex digits  
 [bus] – bus selection, **V** or **P** = Preview, **G** or **M** = Program (Main)  
 [src #] – 1 to 8 for FC-0608, 1 to 12 for FC-0612, 1 to 16 for FC-0616

Example:

SI 7 V 8 Selects input 8 to preview screens 1, 2 and 3  
 SI 1 G 1 Selects input 1 to program screen 1  
 SI 27 P 12 Selects Input 12 to preview screens 1, 2 and 3 and sets AUX 1 to get Input 12 on the next transition.

## Transition Setup

**TRNSETUP** [[type]=[value]] <[type]=[value]> ... <[type]=[value]>

Description:

This command allows the setup of the transition parameters. These parameters are used when either an “AUTO TRANS” key is pressed or the ATRN command is used.

Parameters:

At least one set of parameters must be specified. [type]=[value] are defined as follows:

[type]	[value]	Description
<b>R</b>	0.0 to 5.0 seconds	Single-screen transition rate
<b>MR</b>	0.0 to 5.0 seconds	Multi-screens transition rate
<b>ET</b>	1 to 12	Transition effect type specification. 1=Dissolve                    7=Curtain Open 2=Wipe Left                    8=Mosaic 3=Wipe Right                    9=Multi-Curtain Close 4=Wipe Up                    10=Multi-Curtain Open 5=Wipe Down                    11=Multi-Wipe Right 6=Curtain Close                    12=Multi-Wipe Left
<b>EW</b>	0 to 6	Effect width specification. 0=256 pixels                    4=16 pixels 1=128 pixels                    5=8 pixels 2=64 pixels                    6=4 pixels 3=32 pixels

Example:

TRNSETUP MR=3.0                    Sets multi-screens transition rate to 3 seconds.  
 TRNSETUP ET=1 R=1.2 EW=4        Set transition effect type to Dissolve, single-screen rate to 1.2 seconds, and edge width to 16 pixels.



# CHAPTER SIX

## Folsom Research Information

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

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

**Model FC-0608**  
**ScreenPRO Multi-Screen Remote Controller**

# 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. Folsom Research, Inc. warranties are only valid to the original purchaser/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modifications, lightning strikes, abuse (drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair. 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**

Direct Sales Line: 916-859-2505  
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E-mail: [sales@folsom.com](mailto:sales@folsom.com)

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