



SC-PRE-9A

9x2 Presentation Scaler Switch



User Guide

UMA1193 Rev. C

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FEDERAL COMMUNICATIONS COMMISSION

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This equipment generates, uses, and can radiate radio frequency energy. If not installed and used properly—that is, in strict accordance with the manufacturer's instructions—it may cause interference to radio communication. It has been designed to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to take whatever measures may be necessary to correct the interference at his/her own expense.

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1. Introduction

The SC-PRE-9A is a multi-format video presentation scaler switch with audio. It features 9 inputs of various video formats including HDMI, VGA, Component, Composite, and S-Video with HDMI and VGA outputs. Video can be scaled to various aspect ratios and resolutions from 800x600 up to 1920x1200 @ 60Hz.

The SC-PRE-9A has advanced video features such as Picture-In-Picture (windowing), Picture-beside-Picture (2 inputs shown side by side), screen blanking, freeze frame, and picture controls. It includes an IR remote for common functions as well as an On-Screen Display menu for advanced configuration. It also features an extensive list of RS232 commands for integration with 3rd party control systems.

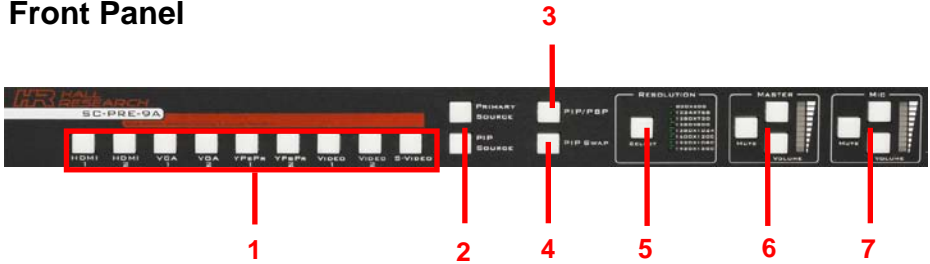


Features

- 9 switchable inputs: 2x HDMI (DVI compatible), 2x VGA, 2x YPbPr, 2x Composite, 1x S-Video
- 2 simultaneous outputs (1x HDMI, 1x VGA) †
- Scaling from 640x480 to 1920x1200 @ 60Hz
- HDTV formats up to 1080P
- Pixel-by-pixel Scaling Output
- HDCP 1.2 compliant
- Controllable via front panel, IR remote, or RS232
- Picture-In-Picture (PIP) and Picture-Beside-Picture (PBP) with window positioning and transparency
- Freeze frame & Screen Blanking
- Picture settings for brightness, contrast, hue, color, and sharpness
- Audio settings for bass, treble and balance
- Preset sound modes available
- OSD menu for advanced configuration with multi-language support
- Microphone input with independent audio control
- Supports NTSC 3.58, NTSC 4.42, PAL, and SECAM video formats
- Internal 100/240V power supply
- 1 RU rack mountable aluminum enclosure

† VGA output may not be available for HDMI inputs for HDCP Compliance

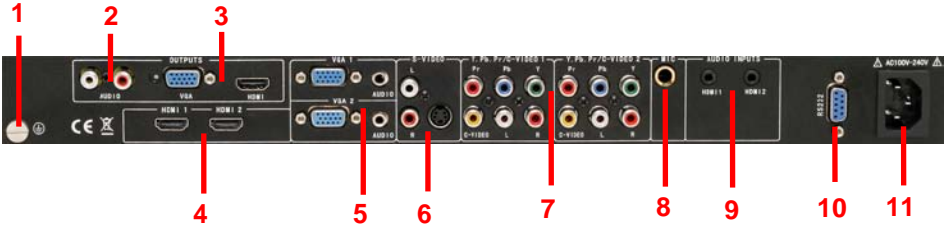
Front Panel



1. Source Selection. Selects among the 9 available source inputs. Source selection buttons can also be used to mute the video by pressing and holding the button for two seconds. The LED will blink while the video is muted. Press again to un-mute.
2. Primary/PIP Source Selectors. These buttons set source selection for Primary or PIP Source. If Primary Source is active then the source selection buttons will switch the primary display. If PIP source is active then the source selection buttons will change the PIP source.
3. PIP/PBP Toggle. Toggles between Picture-In-Picture and Picture-Beside-Picture modes.
4. PIP SWAP. Swaps the primary and PIP sources.
5. Resolution Select. Toggles through the available resolutions for scaling the output.
6. Master Volume Controls. Independent volume and mute controls for the active input source.
7. Mic Volume Controls. Independent volume and mute controls for the microphone input.

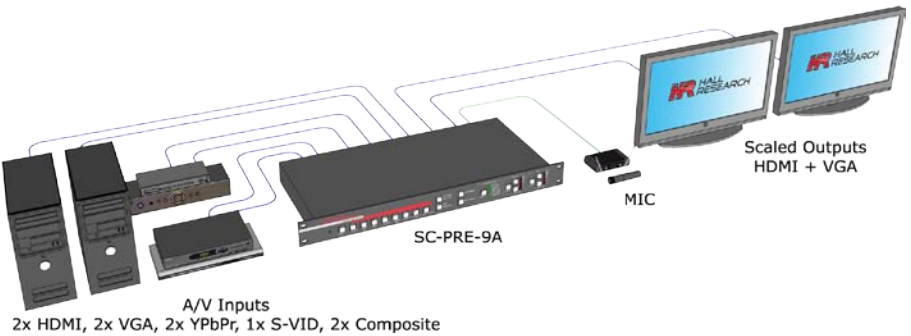
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Rear Panel



1. Chassis Ground
2. Audio Output
3. VGA and HDMI Video Output
4. HDMI Video inputs
5. VGA Video and audio inputs
6. S-Video and audio inputs
7. Component/Composite Video and audio inputs
8. Mic input
9. HDMI stereo audio inputs
10. RS232
11. AC Power

System Diagram



2. OSD Menu

The SC-PRE-9A features an On Screen Display Menu for most of the system configuration. The OSD menu can be accessed by pressing the menu button on the remote.

The OSD Menu has 6 top level items each with their own submenu: *Audio*, *Function*, *Picture*, *Position*, *Setup*, and *Tuner*.

Cycle through menu items by pressing **up or down arrow** on the remote.

Expand a submenu item by pressing the **right arrow**.

Navigate a submenu by pressing **up or down arrow**.

Change the value of a submenu option by pressing **left or right arrow**.

Audio

The Audio menu has settings for volume, treble, bass, balance, mute, and Sound mode.

Function

This menu is for support access only.

Picture

The Picture menu shows settings for brightness, contrast, sharpness, and Image size and color temperature. These settings can be changed through the RS232 interface (See RS232 Control Section).

Position

The Position menu allows you to adjust the main picture size and position pixel-by-pixel. Expand "Main Adjustments" to set the Horizontal and Vertical size and position.

H Size: Adjusts the horizontal pixel dimensions

V Size: Adjusts the vertical pixel dimensions

H Position: Adjusts the horizontal image position

V Position: Adjusts the vertical image position

Tuner

This menu is not used on the SC-PRE-9A.

Setup

The Setup menu has various system settings.

Language: Sets the OSD language.

Sleep Timer: Sets the timer before the system goes to sleep.

Transparency: Sets the opacity of the OSD window

Source Rename: Allows you to change the name of the source to either: Default, DVD, VCR, Satellite, Antenna, or Cable.

H Enable Start: Adjusts horizontal pixel timing.

V Enable Start: Adjusts vertical pixel timing.

3. RS232 Control

The SC-PRE-9A features an extensive RS232 protocol for integration with 3rd party control systems.

Communication Settings

Baud Rate	9600
Data bits	8
Stop bits	1
Parity	None

Command List

⇒ **Note that all commands are followed by a carriage return (CR)**

Command	Description
1000	Query current source selection
1001	Query resolution setting
1002	Query line volume level
1003	Query mic volume level
1004	Query audio mute status
1005	Query PIP status
1006	Query PIP position
1007	Query PIP alpha level
1008	Query PIP window size
1009	Query status of freeze frame
1010	Enable Freeze frame
1011	Disable Freeze frame
1012	Reset to factory defaults
1013	Query bass level
1014	Query treble level
1015	Query balance setting
1016	Query PBP status
1017	Query current sound mode
1018	Query front panel lock status
1019	Query screen saver color
1020	Query video source OSD status
1021	Query audio volume and mute OSD status

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Command	Description
1022	Query video blank status
1023	Query audio channel lock status
1024	Query current PIP/PBP Window selection
1025	Query phase setting
1026	Query brightness level
1027	Query contrast level
1028	Query saturation level
1029	Query sharpness level
1030	Query Red Color Temp level
1031	Query Green Color Temp level
1032	Query Blue Color Temp level
1033	Query aspect ratio
01XX	Line Volume setting. [XX] ranging from 00-60
02XX	MIC Volume setting. [XX] ranging from 00-60
03XX	Brightness setting. [XX]ranging from 00-99
04XX	Contrast setting. [XX] ranging from 00-99
05XX	Color setting. [XX] ranging from 00-99
0600	MUTE Line and MIC
0601	Output frame auto-adjustment. Horizontal/Vertical auto-adjust
0602	Volume +
0603	Volume -
0608	Change aspect ratio: 16:9, 16:10, 4:3
0609	Menu ENTER
0609	Menu Left
0610	Menu Right
0611	Menu Up
0612	Menu Down
0624	PIP,PBP selection
0625	P.P picture mode
0626	SM sound mode
0627	PIP/PBP Swap
0628	NICAM sound mode
0630	MIC Vol +
0631	MIC Vol -
0700	Query Video Source, Resolution, Line Audio level, Mic audio level and Master Mute
0701	HDMI 1 Input Selection

Command	Description
0702	HDMI 2 Input Selection
0703	VGA 1 Input Selection
0704	VGA 2 Input Selection
0705	Component 1 Input Selection
0706	Component 2 Input Selection
0707	S-Video Input Selection
0708	Video 1 Input Selection
0709	Video 2 Input Selection
0711	800X600 SVGA
0712	1024X768 XGA
0713	1280X720 720P
0714	1280X800 WXGA
0715	1280X1024 SXGA
0716	1600X1200 UXGA
0717	1920X1080 1080P
0718	1920X1200 WUXGA
0720	Query brightness, contrast, color hue, saturation, phase and sharpness settings
0721	Screen Saver Color: Black
0722	Screen Saver Color: Blue
0723	Disable on screen display status of video source
0724	Enable on screen display status of video source
0725	Disable on screen display status of master and Mic volume level and mute
0726	Enable on screen display status of master and Mic volume level and mute
0728	Menu On / Off
0729	Menu Enter
0730	PIP / PBP Off
0731	PIP On
0732	PBP On
0733	PIP/PBP Window HDMI 1 Input Selection
0734	PIP/PBP Window HDMI 2 Input Selection
0735	PIP/PBP Window VGA 1 Input Selection
0736	PIP/PBP Window VGA 2 Input Selection
0737	PIP/PBP Window Component 1 Input Selection
0738	PIP/PBP Window Component 2 Input Selection
0739	PIP/PBP Window Video 1 Input Selection
0740	PIP/PBP Window Video 2 Input Selection

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Command	Description
0741	PIP/PBP Window S-Video Input Selection
0745	Video blank
0746	Unblank Video
0747	Lock audio channel. This audio channel won't follow the video switching
0748	Unlock audio channel
08XX	Phase setting. [XX] ranging from 00-99
09XX	Sharpness setting. [XX] ranging from 00-15
11XX	Set PIP alpha level. [XX] ranging from 0-99
12XX	Set bass level. [XX] ranging from 0-99
13XX	Set treble level. [XX] ranging from 0-99
14XX	Set audio balance level. [XX] ranging from 0-99
15XX	Set Red Color Temp level. [XX] ranging from 0-99
16XX	Set Green Color Temp level. [XX] ranging from 0-99
17XX	Set Blue Color Temp level. [XX] ranging from 0-99
18XX	Set PIP horizontal position
19XX	Set PIP vertical position
20XX	Set PIP window size. [XX] ranging from 0-99
21XX	Set aspect ratio to XX(00-09) 00 FILL ALL 01 ASPECT RATIO 02 ONE TO ONE 03 NORMAL 04 WIDE 05 ZOOM 06 ANAMORPHIC 07 SUBTITLE 08 NEOII WIDE 09 AUTO
LOCK	Lock the buttons of the front panel. Resend for unlock

4. Specifications

Video

Input	2x Digital (HDMI) 2x VGA (HD15) 2x Component (3RCA) 2x Composite (RCA) 1x S-Video (4 pin mini DIN)	Output	1x Digital (HDMI) 1x VGA (HD15)
Supported Video Signals	HDMI 1.2 NTSC 3.58, NTSC 4.42 PAL RGBHV, RGBs, RGsB, RsGsBs SECAM YPbPr	Resolutions	SVGA 800x600 XGA 1024x768 720P 1280x720 WXGA 1280x800 SXGA 1280x1024 UXGA 1600x1200 1080P 1920x1080 WUXGA 1920x1200
Bandwidth	HDMI: 4.95 GBps VGA: 375 MHz CV & S-Video: 150 MHz:	Max Pixel Clock	165 MHz
Switching Latency	200ns (Min)	Switching Type	Vertical interval
VGA Cross Talk	-50 dB @ 5 MHz	Video Impedance	75 Ω

Audio

Input	2x L/R RCA (Component/Composite) 1x L/R RCA (S-Video), 2x 3.5mm (HDMI) 2x 3.5mm (VGA) 1x ¼" Mono (Mic)	Output	1x L/R RCA
Input Impedance	> 10 K Ω	Output Impedance	50 Ω
Stereo Separation	> 80 dB @ 1 KHz	CMRR	>90 dB @ 20 to 20,000 Hz
Frequency Response	20 – 20,000 Hz		

General

Operating Temperature	0 to 50° C	Humidity	10% – 90%
Storage Temperature	-10 to 60° C	Power	100VAC – 240VAC @ 50/60 Hz
Current	25W	Weight	3.3 lbs
Dimensions	483mm (W) x 235mm (L) x 44mm (H)		

PIP/PBP Compatibility

Not any two inputs can be simultaneously displayed in PIP or PBP modes. For example you cannot have two VGA inputs simultaneously displayed. This is due to A/D converters that is shared between them. The following table indicates which signals are compatible for PIP/PBP windowing. Pick the background image along the left column, then the checkmarks tell you which other inputs can be windowed with it.

	HDMI 1	HDMI 2	VGA 1	VGA 2	YPbPr 1	YPbPr 2	Video 1	Video 2	S-Video
HDMI 1			✓	✓	✓	✓	✓	✓	✓
HDMI 2			✓	✓	✓	✓	✓	✓	✓
VGA 1	✓	✓					✓	✓	✓
VGA 2	✓	✓					✓	✓	✓
YPbPr 1	✓	✓					✓	✓	✓
YPbPr 2	✓	✓					✓	✓	✓
Video 1	✓	✓	✓	✓	✓	✓		✓	✓
Video 2	✓	✓	✓	✓	✓	✓	✓		✓
S-Video	✓	✓	✓	✓	✓	✓	✓	✓	

5. Troubleshooting

Problem	Solution or Possible Cause
Screen is blank	<p>Verify the screen output is not set to blank.</p> <p>Verify your source is emitting a proper signal.</p> <p>Verify cable connections.</p> <p>Try other output resolutions</p> <p>Remember due to HDCP compliance VGA output will be blanked for HDMI inputs</p>
Outside edges of the image are cut off (image cropping) particularly when a PC input is shown on HDMI display at HDTV resolution.	<p>Some displays intentionally crop HDTV inputs (720p or 1080p resolutions particularly) slightly. The amount of cropping varies by each display. Therefore, the only way to correct this is to scale the image down to the viewable area. You can do this in the OSD menu under "Position" settings by adjusting H</p> <p>If you still get a bad image or no image at all, it means that your display does not support PC resolutions on its HDMI input. In that case look for a DVI input on your display. By definition they ought to support the gamut of PC resolutions on their DVI input.</p> <p>If you still can't get a proper image, please understand that this is an anomaly of your display and you may need to try a different display that can handle PC input resolutions properly without cropping.</p>
Static or other video interference	<p>Make sure unit is properly grounded. Use the grounding connector on the rear panel of the chassis.</p>

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Front panel buttons not working	Make sure the front panel controls are not locked. Refer to the RS232 command list to Lock/unlock the front panel.
Serial control not working	Verify the correct com port settings. Refer to the RS232 section of this guide.
Video colors not correct	Check the color settings of the device. Reset back to the factory defaults to eliminate any misconfiguration of the picture settings.



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