



CRUTCHFIELD RPS1 4K 5×1 Multi-Format Scaler Switcher User Manual

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CRUTCHFIELD RPS1 4K 5×1 Multi-Format Scaler Switcher User Manual



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Thank you for purchasing this device

The Simplified MFG EX1 is designed to provide years of reliable service. At Simplified MFG, we want the

experience with this device to be the best possible and are committed to helping achieve that experience.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection such as the HDSURGE and other systems is highly recommended in order to protect and extend the life of your equipment.

Introduction

The RPS1 is a Multi-input presentation switch with 5 inputs consisting of 4xHDMI and 1xVGA(YPbPr,CVBS). Each input source is switched and scaled to adopt resolution then output through the HDMI port. The resolution and aspect ratios are adjustable. The system can be controlled via front touchpanel button, IR remote, and RS-232. The RPS1 is 18gbps 4K capable and can accept nearly any resolution input making it a great solution for class rooms, courtrooms, and boardrooms.

Features

- Compliant with HDMI2.0/1.4b, HDCP2.2/1.4
- Supports multi inputs: 4 x HDMI, 1 x VGA (YPbPr, CVBS)
- Supports HDMI input resolutions up to 4K UHD 4:4:4 @50/60
- Supports output resolutions up to 4K UHD 4:4:4 @60
- Two input switching modes: auto or manual
- User assignable EDID
- PCM 2CH audio pass through
- Device could be controlled via touch panel button, IR remote and RS-232
- Supports USB online software upgrading

Package Contents

- 1xRPS1 Scaling Presentation Switch
- 2xMounting Ears
- 1xRemote Control
- 1xIR Receiver
- 1x12V/2.5A Power Adapter
- 1x 3RCA(Female) to D-SUB(Male) Cable
- 1x3.5mm Jack(Male) to 2RCA(Female) Cable
- 1xUser Manual

Specifications

Technical

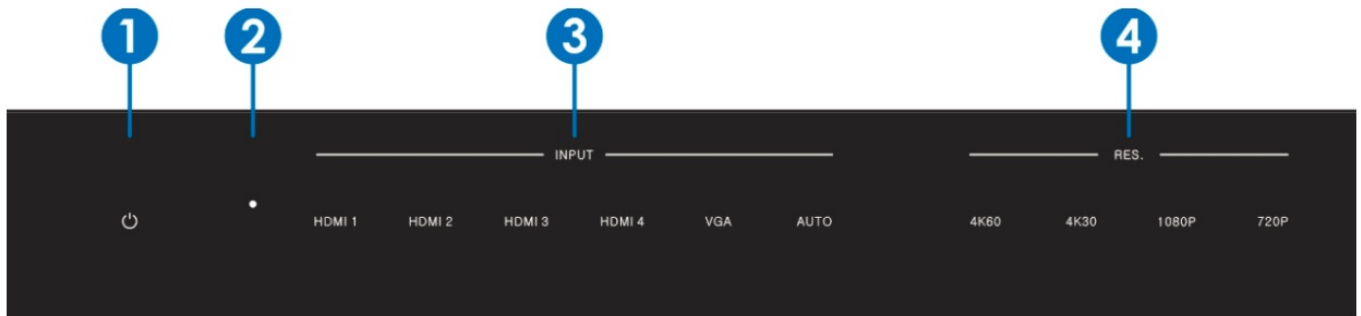
HDMI Compliance	HDMI 2.0/1.4b
HDCP Compliance	HDCP 2.2/1.4
Video Input Resolutions	HDMI: up to 4K2K@50/60Hz(4:4:4)
	C-Video: PAL/NTSC3.58/NTSC4.43/SECAM/PAL M/PAL N
	YPBPR: 480i to1080p
	VGA: 640×480 to1920x1200
HDMI Output Resolutions	<ul style="list-style-type: none"> • 4K2K60,4K2K30,1920X1080p/50, 1920X1080p/60, • 1280X720p/50, 1280X720p/60 1024×768/60,1280×800/60, • 1360×768/60,1400×1050/60,1680×1050/60,1920×1200/60;
Audio Formats	LPCM 2.0CH
ESD Protection	Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge)
Connections	
Input ports	<ul style="list-style-type: none"> • 4x HDMI Type A [19-pin female] • 1x VGA[female] • 1x Micro USB [5-pin female], optional for Power Supply

Output ports	<ul style="list-style-type: none"> • 1x HDMI Type A [19-pin female] • 1x3.5mm mini jack
Control interfaces	<ul style="list-style-type: none"> • 1x IR in • 1x RS-232 • 1x USB service(update)
Mechanical	
Housing	Metal
Color	Black
Dimensions	110mm [W] x 288mm [D] x 32mm [H]
Weight	880g
Power Supply	DC 12V/2.5A Adaptor (US/EU standards, CE/FCC/UL certified)
Power Consumption	9W(max)
Operation Temperature	32 – 104°F / 0 – 40°C
Storage temperature	-4 – 140°F / -20 – 60°C

Relative Humidity	20 – 90% RH (no condensation)
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Operation Controls and Functions

Front Panel



1. Power button and indicator:

Switches between standby and work mode. When this device is switched to the standby mode, the indicator turns red. When switching to work mode, the indicator turns blue

2. IR Window:

Receives the IR signal from remote control unit provided with RPS1 switch

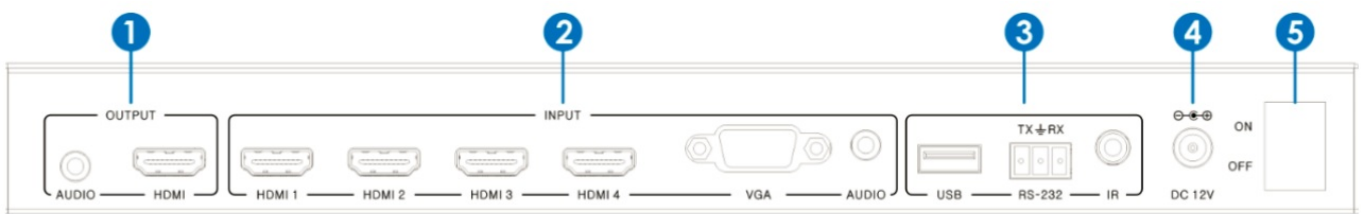
3. Input Source & Auto buttons:

These buttons are for source selection. The active source will be indicated on the front panel via illumination. The AUTO button is for auto-switching or manual switching mode, when the indicator turns blue, the device switch to auto-switching mode, when the indicator turns off, the device switch to manual-switching mode

4. Output Resolution buttons:

These buttons are for output resolution selection. Select between 4K60, 4K30, 1080P60, 720P60. For more resolutions options, please use remote control or RS-232 control tools

Rear Panel



1. Output:

HDMI output for connecting to an HDMI display or other HDMI device L/R stereo audio output to the analog audio input port of your amplifier

2. Input:

The input ports include 4 HDMI & 1 VGA input ports. The VGA ports supports YPbPr, C-video and VGA input formats. YPbPr adapter is included

3. **Control:**

USB

USB port is used to update the system firmware

RS232

Serial control port, 3p Phoenix connector, connects with a control device (such as a third-party control system) to control the scaler switcher

IR

Connects with IR receiver, to receive IR signals sent by the IR remote or IR output from a third-party control system

4. **Power:**

Plug the 12V DC power supply into the unit and connect the adaptor to an AC outlet

5. **ON/OFF:**

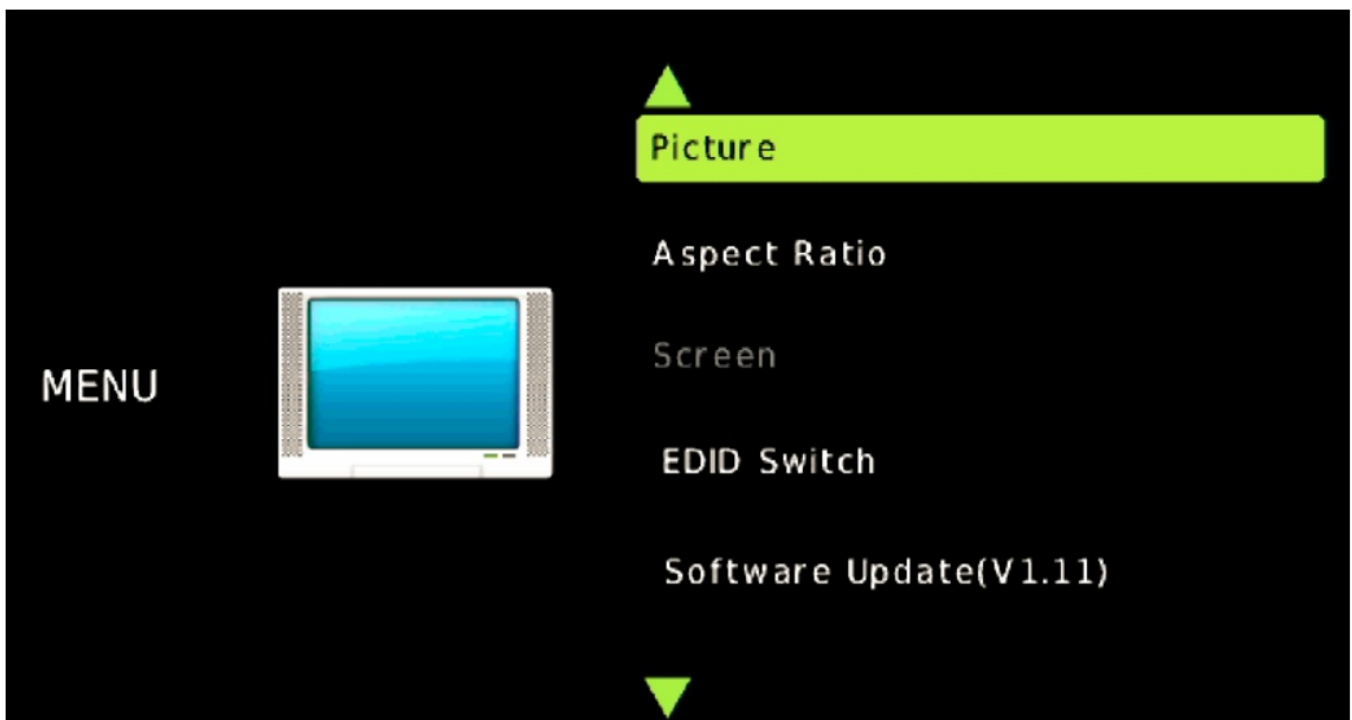
Power ON/OFF switch

OSD MENU

The RPS1 provides a powerful OSD operation menu. Press MENU button on IR remote to enter in OSD menu, Users can then change settings through the OSD menu.

Main MENU

The Main MENU includes Picture, Aspect ratio, Screen, EDID, and Software update options.



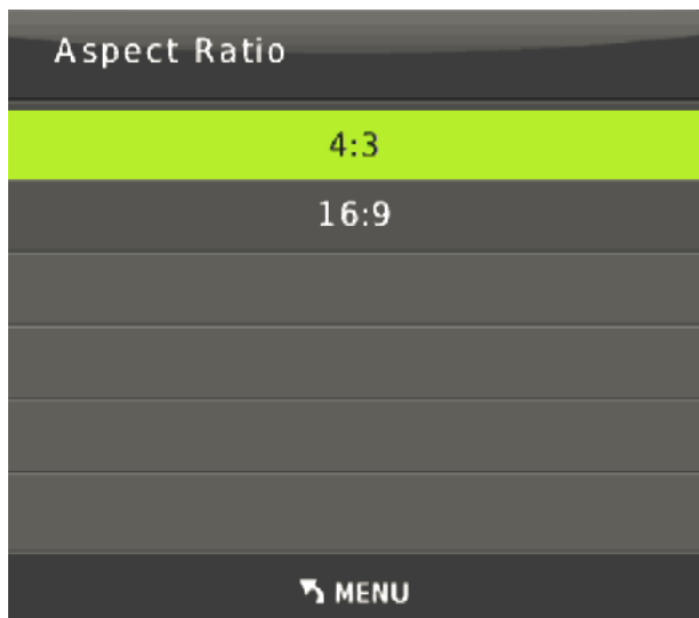
Picture

The user can adjust picture contrast(default:50), brightness(default:50), color(default:30), sharpness (default:10) etc.



Aspect Ratio

The user can adjust picture output aspect ratio to 4:3 or 16:9 .



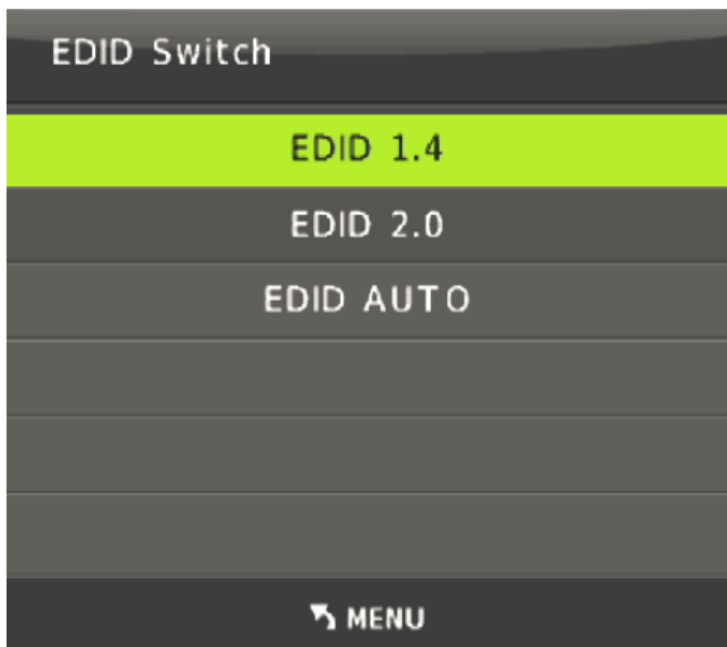
Screen

The screen MENU is an adjustment for VGA input only. The user can adjust horizontal, vertical position, size and phase.



EDID

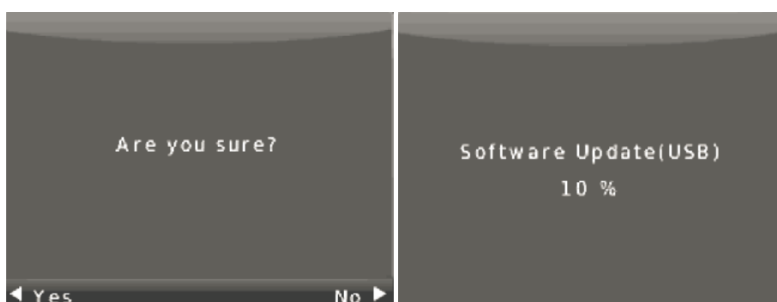
The EDID adjust MENU for HDMI input only. EDID1.4 for HDMI1.4 standard. EDID2.0 for HDMI2.0 Standard, and EDID AUTO for copy the display EDID Mode.



Software update

The RPS1 supports software updates via USB flash disk. The procedure is as follows:

1. Copy the file “**MERGE.bin**” to the root directory of a USB flash disk. (Make sure the file is copied to the root directory. The “**MERGE.bin**” file is provided/authorized by our engineering department or from our website)
2. Plug the USB flash disk to the scaler switcher USB port on its rear panel.
3. Press the MENU →software update→YES enter to start the update. the OSD will display the update process.

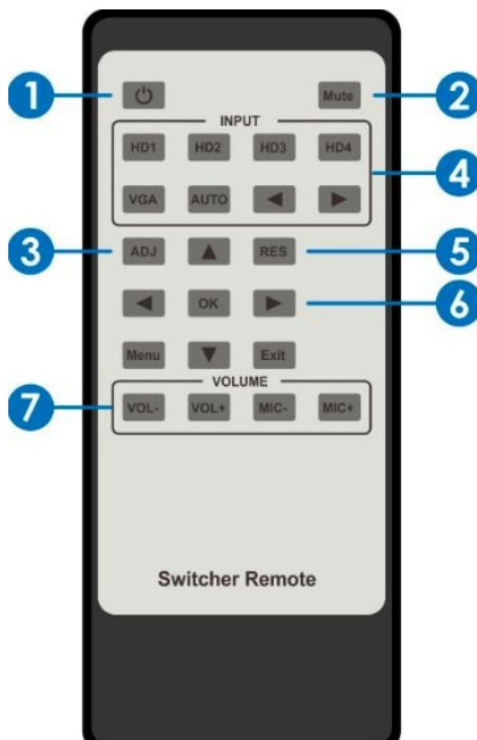


Resolution

The RPS1's HDMI output can be set to multiple different resolutions. Press the "RES" button on the IR remote, the resolution menu will display. The user can select suitable resolution for HDTV or monitor. Auto means that the HDMI resolutions based on the EDID information read from the display device.



Remote Control



1. Press this button to power on the scaler switcher or set it to standby mode.
2. Press this button for mute or unmute the audio output.
3. Press this button for operate VGA input auto adjustment function;

4. Press these buttons for select the input source.
5. Press this button for select HDMI output resolution. (**Press and hold 5 seconds or more, the HDMI output resolution will reset to 720p60Hz.**)
6. Menu operation buttons:
 - MENU:** press to enter in OSD menu.
 - EXIT:** press to exit OSD menu.
 - OK:** confirm button.
 - UP/DWON/LEFT/RIGHT button:** for OSD value setting.
7. VOL-/++ decrease or increase audio volume, MIC-/++ is Unused.

Auto-Switching function

The RPS1 has an auto-switching mode and manual-switching mode. When the user selects auto-switching mode, it will react as follows:

New input principle

Once a new input signal is detected, the RPS1 will switch to this new signal automatically.

Power rebooting principle

The RPS1 offers the function to remember the signal last used after rebooting. Once rebooted, it will automatically enter auto-switching mode, and then detect all inputs and memorize their connection status for future reboots. If the last used input signal is still available, then it will choose that signal. If not, it will detect all input signals with priority on HDMI1->HDMI2->HDMI3->HDMI4->VGA(YPbPr/CVBS).

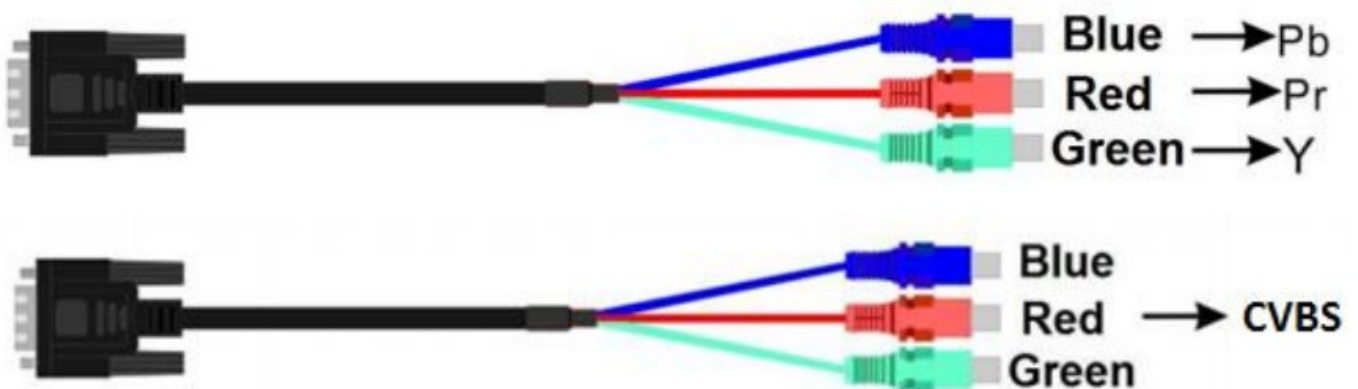
Signal removing principle

Once the current signal is removed, the RPS1 will detect all input signals with priority on HDMI1->HDMI2->HDMI3->HDMI4->VGA(YPbPr/CVBS). It will transfer the first signal detected to the output.

Notice: Auto-switching function works only when there is a new input signal or if an input signal is removed.

VGA/YPbPr/CVBS input

The VGA input port is a multiple format port, it can accept a VGA, YPbPr, or CVBS input signal. The RPS1 will auto detect the input signal type and format. A converter cable is provided for use with YPbPr or CVBS inputs.



Operations of RS232 Control

Please connect the RPS1 with input devices and output device needed, then connect it with a computer that is installed with RS232 control software. Double-click the software icon to run this software on your computer. The

interface of the control software is showed as below:

5x1 Scaler Switcher V1.02

General **Setup**

COM

Port

INPUT

☐ AUTO

OUTPUT

Resolution

Aspect Ratio ☐ 4 : 3 ☐ 16 : 9

Reset to the factory settings

Disable/Enable Beep

☐ Enable Beep

5x1 Scaler Switcher V1.02

General **Setup**

EDID

Set EDID Mode

Image Regulate

Contrast 0

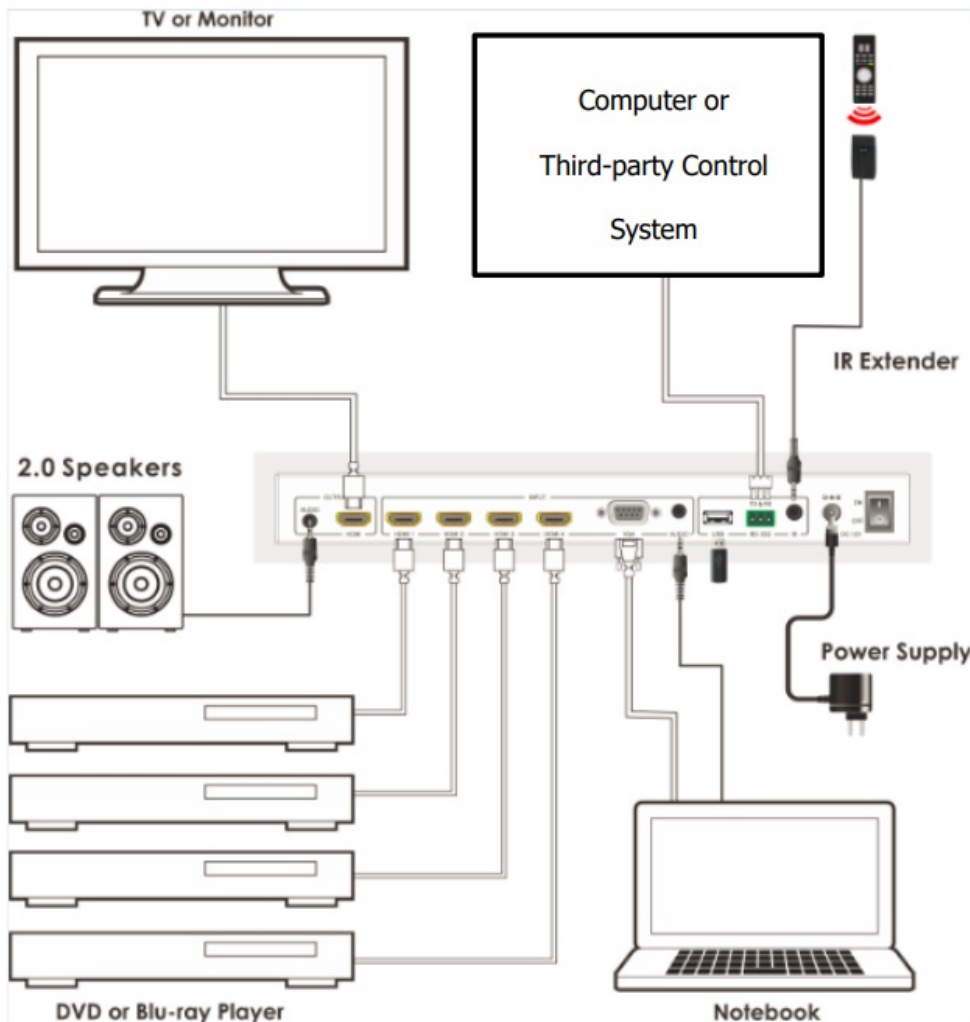
Brightness 0

Color 0

Sharpness 0

Audio

Connection Diagram



1. Connect HDMI source devices (e.g. Blu-ray DVD) to HDMI input ports of the RPS1 with HDMI cable. Connect VGA source device (eg. PC/note-book) to VGA input ports of the scaler switcher with a VGA cable.
2. Connect HDMI display device to the HDMI output port of the RPS1 with a HDMI cable.
3. Connect speaker, headphone or specialized amplifier to AUDIO output port of the RPS1.
4. Connect control device (e.g. PC) to RS232 port of the RPS1.
5. Connect DC12V power adaptor to the power port and power on.

Warranty

Should you feel your product does not function adequately due to defects in materials or workmanship, we (referred to as “the warrantor”) will, for the length of the period indicated below (starting from the original date of purchase) either: a) Repair the product with new or refurbished parts. or b) Replace it with a new or refurbished product.

All Simplified MFG products are covered by a 3 year PARTS and LABOR warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of product if necessary. The decision to repair or replace will be made by the warrantor. The purchaser must mail-in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferable to subsequent owners, even during the warranty period. A purchase receipt or other proof of original purchase date is required for the limited warranty service.

1. This Limited Warranty ONLY COVERS failures due to defects in materials or workmanship and DOES NOT COVER normal wear and tear or cosmetic damage. The limited warranty also DOES NOT COVER damage

that occurs in shipment or failures caused by products not supplied by the warrantor, failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, incorrect installation, set-up adjustment, implementation of/to consumer controls, improper maintenance, power line surge, lightening damage, modification, service by anyone other than a manufacturer-approved service center or factory authorized personnel, or damage attributable to acts of God.

2. There are no express warranties except as listed under “limited warranty coverage.”

The warrantor is not liable for incidental or consequential damage resulting from the use of this product or arising out of any breach of this warranty. For example: damages for lost time, the cost of having a person/persons remove or re-install previously installed equipment, travel to and from service location, loss of or damage to media, images, data or other recorded/stored content. The items listed here are not exclusive, but are for illustration only. Parts and service not covered by this limited warranty are not the responsibility of the warrantor and should be considered the responsibility of the individual.

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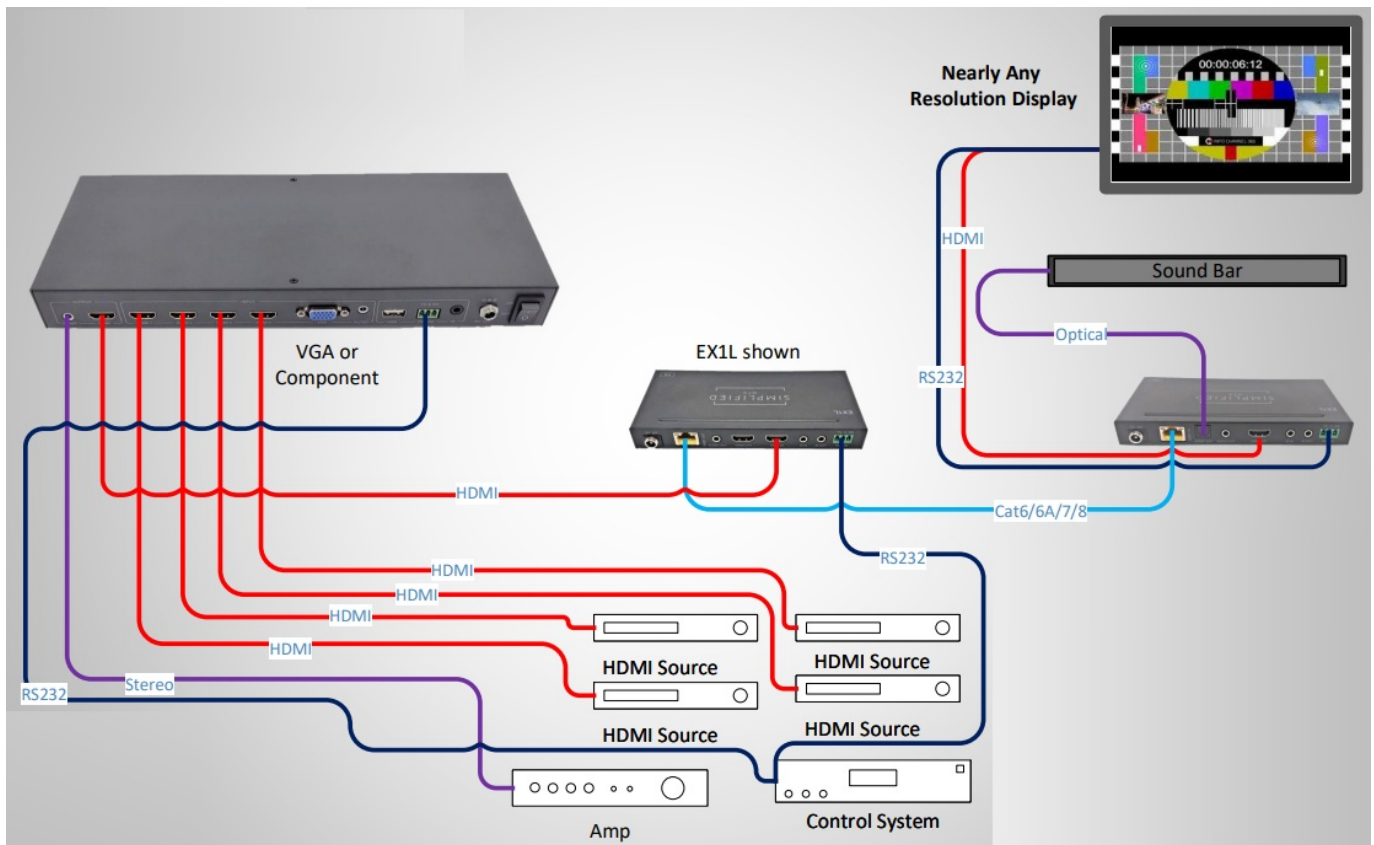
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Contact

Sales and Tech Support

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E info@simplifiedmfg.com



Legend

- HDMI
- AV Cat
- Network
- Audio Line
- Speaker
- Ir TX
- Ir RX
- RS232

- The RPS1 is a five input scaling presentation switch (4 HDMI, 1 Combo VGA/Component)
- The RPS1 will both scale and framerate convert from 60Hz. To 30Hz. In 1080p and in 4K
- The RPS1 will scale to nearly any resolution (too many to list here), making it nearly a guarantee that the switch is going to work with the display chosen
- The RPS1 has an audio breakout and volume control

The RPS1 is a 5 input presentation switch (4HDMI/1 VGA/Component).

The front panel is capacitive touch and can be used to switch inputs as well as auto switching, IR, and RS232 controllable. This device will accept nearly any resolution input and can scale to nearly any resolution out including frame rate conversion (30Hz./60Hz. Output at 4K). Other features include picture control and an HDMI/3.5mm volume control.



Features

- 4 HDMI and one convertible VGA input that will accept component
- Scaling many input resolutions to many different output resolutions
- Frame rate conversion
- Audio breakout with volume control
- Picture control allows adjustment of Contrast and Brightness.
- Compact design
- 3-Year Warranty

Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2 / HDCP 1.4
Video Bandwidth	18Gbps
Video Resolutions	In: 480i/p, 576i/p, 720p, 1080i/p, 800×600, 1024×768, 1280×720, 1920×1080, 4 Kx2K @30Hz, 4Kx2K@60Hz. C Video PAL/NTSC3.58/NTSC4.43/SECAM/PAL M/PAL N VGA 640×480 to 1920x1080p Output; 480i/p, 576i/p, 720p, 1080i/p, 800×600, 1024×768, 1280×720, 1920×1080, 4Kx2K @30Hz, 4Kx2K@60Hz.

Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2
Color Depth	8 Bit, 10-Bit, 12 Bit
HDMI Audio Formats (Pas s-Through)	LPCM 2.0
ESD Protection	Human body model — $\pm 8\text{kV}$ (air-gap discharge) & $\pm 4\text{kV}$ (contact discharge)
Connections	
Inputs	4x HDMI Type A [19-pin female] 1x VGA 2x 3.5mm mini [1 audio, 1 IR] 1x DB9 [RS232]
Outputs	1x HDMI Type A [19-pin female] 1x 3.5mm
DC Power	1x 12V Screw Down connector
Mechanical	
Housing	Metal Enclosure

Color	Black
Dimensions	288mm [W] x 110mm [D] x 32mm [H] 11.34"x 4.22" x 1.25"
Weight	880g /31 Oz.
Power Supply	Input: AC100 – 240V 50/60Hz Output: DC 12V/2.5A (US/EU standards, CE/FCC/UL cer- tified)
Power Consumption	9W (Max)
Operation Temperature	32 – 104°F / 0 – 40°C
Storage Temperature	-4 – 140°F / -20 – 60°C
Relative Humidity	20 – 90% RH (no condensation)

833-HDMI-411 (436-4411)

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Documents / Resources

