

# ▶ SM11

## User Manual

(Revision for firmware v2.0 onwards)

**Thank you for purchasing this product.**

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.



**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 systems is highly recommended in order to protect and extend the life of your equipment.

**Safety And Performance Notice**

Do not substitute or use any other power supply other than the enclosed unit, or a Blustream approved replacement.

Do not disassemble Blustream hardware for any reason. Doing so will void the manufacturer’s warranty.

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# Introduction

Our SM11 HDMI Signal Manager has been designed to help solve HDMI compatibility, HDCP2.2, clock stretching, EDID and handshaking issues that are becoming common problems when distributing HDMI signals.

The SM11 also features de-embedding and embedding audio within the HDMI signal path, allowing you to breakout up to 7.1 channel audio signals. The SM11 supports full HDMI 2.0 and HDCP 2.2 with video resolutions up to and including 4K @ 60Hz 4:4:4.

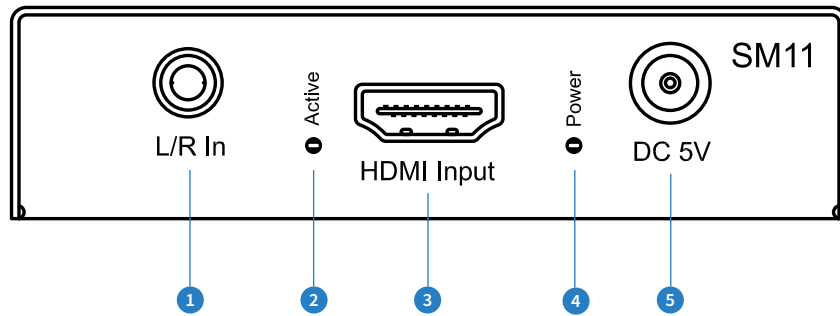
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## FEATURES:

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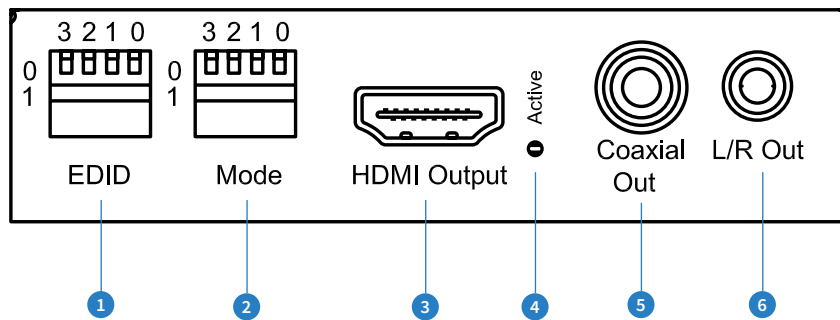
- Can help to solve most HDMI, EDID, HDCP, compatibility, and handshaking issues
- Supports HDMI 2.0 specification 4K UHD video (4K 60Hz 4:4:4)
- HDCP 2.2 compliant
- Supports all industry standard video resolutions including VGA-WUXGA and 480i-4K
- Supports all known HDMI audio formats including Dolby TrueHD, Dolby Atmos, Dolby Digital Plus and DTS-HD Master Audio transmission (HDMI pass-through)
- Embed stereo analogue (L/R) audio using the 3.5mm stereo jack input in place of source audio onto the HDMI output signal path
- HDMI audio extracted to both analogue L/R audio and coaxial digital outputs concurrently
- Hot Plug Detect mode (HPD) for terminating the input handshake at the SM11 allowing for audio extract from a live video signal without a display connected to the SM11 output
- Extract audio with or without a connected display - acts as an end-sink
- Supports HDR (High Dynamic Range) pass-through
- Supports 3D signal display
- Advanced EDID management

## Front Panel



- ① L/R Analogue Audio Input - 3.5mm stereo jack
- ② HDMI Input Indicator LED - Lit when connected to a source
- ③ HDMI Input - Connect to a HDMI source
- ④ Power Indicator LED - Lit when unit is powered on
- ⑤ Power Port - Use supplied 5V 1A DC adaptor

## Rear Panel



- ① EDID DIP Switch (UP = 0, DOWN = 1) - See page 5 for further details
- ② Mode DIP Switch - See page 6 for further details
- ③ HDMI Output - Connect to a HDMI display (unless using as an audio breakout only product)
- ④ HDMI Link Status LED - Lit when connected to a HDMI display
- ⑤ Coaxial Digital Audio Output (RCA)
- ⑥ Left / Right Analogue Audio Output - De-embedded audio from the HDMI signal input. **Please note:** source input must be PCM 2ch audio for analogue audio output to work. The SM11 does not down-mix multi-channel audio signals.

# EDID Control

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display, from this information the source will discover what the best audio and video resolutions need to be outputted.

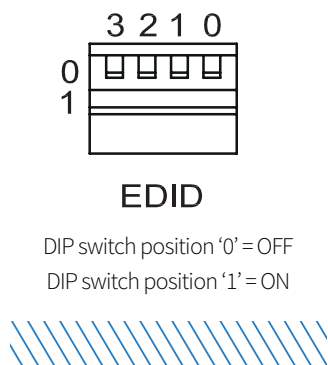
While the objective of EDID is to make connecting a digital display to a source a simple plug and play procedure, issues do arise when multiple displays or video matrix switching is introduced because of the increased number of variables.

By pre-determining the video resolution and audio format of the source and display device you can reduce the time needed for EDID hand shaking thus making switching quicker and more reliable.

Configuration of extender EDID settings can be achieved using the product DIP switches on the end panel of the SM11.

**Note:** You must power cycle the product after making EDID changes. For some sources it may be necessary to power cycle the source after EDID changes have been made for the source to update its video & audio output settings.

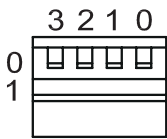
## Global EDID Settings



DIP ON ▼/OFF▲ SWITCHING POSITIONS				EDID TYPE
3	2	1	0	
OFF	OFF	OFF	ON	1080p / 2ch
OFF	OFF	ON	OFF	1080p / 5.1ch
OFF	OFF	ON	ON	1080p / 7.1ch
OFF	ON	OFF	OFF	1080i / 2ch
OFF	ON	OFF	ON	1080i / 5.1ch
OFF	ON	ON	OFF	1080i / 7.1ch
OFF	ON	ON	ON	4K@60Hz 4:2:0 / 2ch
ON	OFF	OFF	OFF	4K@60Hz 4:2:0 / 5.1ch
ON	OFF	OFF	ON	4K@60Hz 4:2:0 / 7.1ch
ON	OFF	ON	OFF	4K@60Hz 4:4:4 / 2ch
ON	OFF	ON	ON	4K@60Hz 4:4:4 / 5.1ch
ON	ON	OFF	OFF	4K@60Hz 4:4:4 / 7.1ch
ON	ON	OFF	ON	DVI 1280x1024 (no audio)
ON	ON	ON	OFF	DVI 1920x1080 (no audio)
ON	ON	ON	ON	DVI 1920x1200 (no audio)
OFF	OFF	OFF	OFF	Copy Sink EDID

**Please note:** When EDID is set to 1080p 2ch/5.1ch/7.1ch the HDCP handshake with the connected source device will always be **HDCP 1.x** (not HDCP 2.2)

# Mode DIP Switch Settings



The SM11 can be configured to perform various tasks using the Mode DIP switches. For details on each setting please see below:

**Note:** You must power cycle the product after making Mode changes for the settings to take affect.

## DIP switch 3 - Hot Plug Detect mode - ON / OFF

When Hot Plug Detect mode is turned OFF the SM11 will use the HPD of the connected display on the HDMI output.

When Hot Plug Detect mode is turned ON the SM11 will complete the HPD back to the source connected to the HDMI input, no longer requiring a connected display.

Turning on HPD in the SM11 can be beneficial in 2 ways:

- 1) Audio de-embedding is required but no display is available. The SM11 will act as the HDMI end-point completing the necessary HDMI handshake, allowing the HDMI source to output a signal.
- 2) The SM11 will act as the HDMI end-point completing the necessary HDMI handshake which can help resolve any handshake issues that may be associated with the display connected to the HDMI output of the SM11.

Position = 0 (up) - HPD (hot plug detect) ON

Position = 1 (down) - HPD OFF

## DIP switch 2 - Audio Embedding

The SM11 can be used to embed audio onto the HDMI output signal.

Position = 0 (up) - HDMI input audio pass-through (no audio embedding)

Position = 1 (down) - audio embedding (2ch L/R audio input added to the HDMI video out)

**Please note - Audio de-embedding is always active and is the breakout of the HDMI input audio only. Source input must be PCM 2ch audio for analogue audio output to work. The SM11 does not down-mix multi-channel audio signals.**

## DIP switch 1 - HDCP Bypass or Conversion

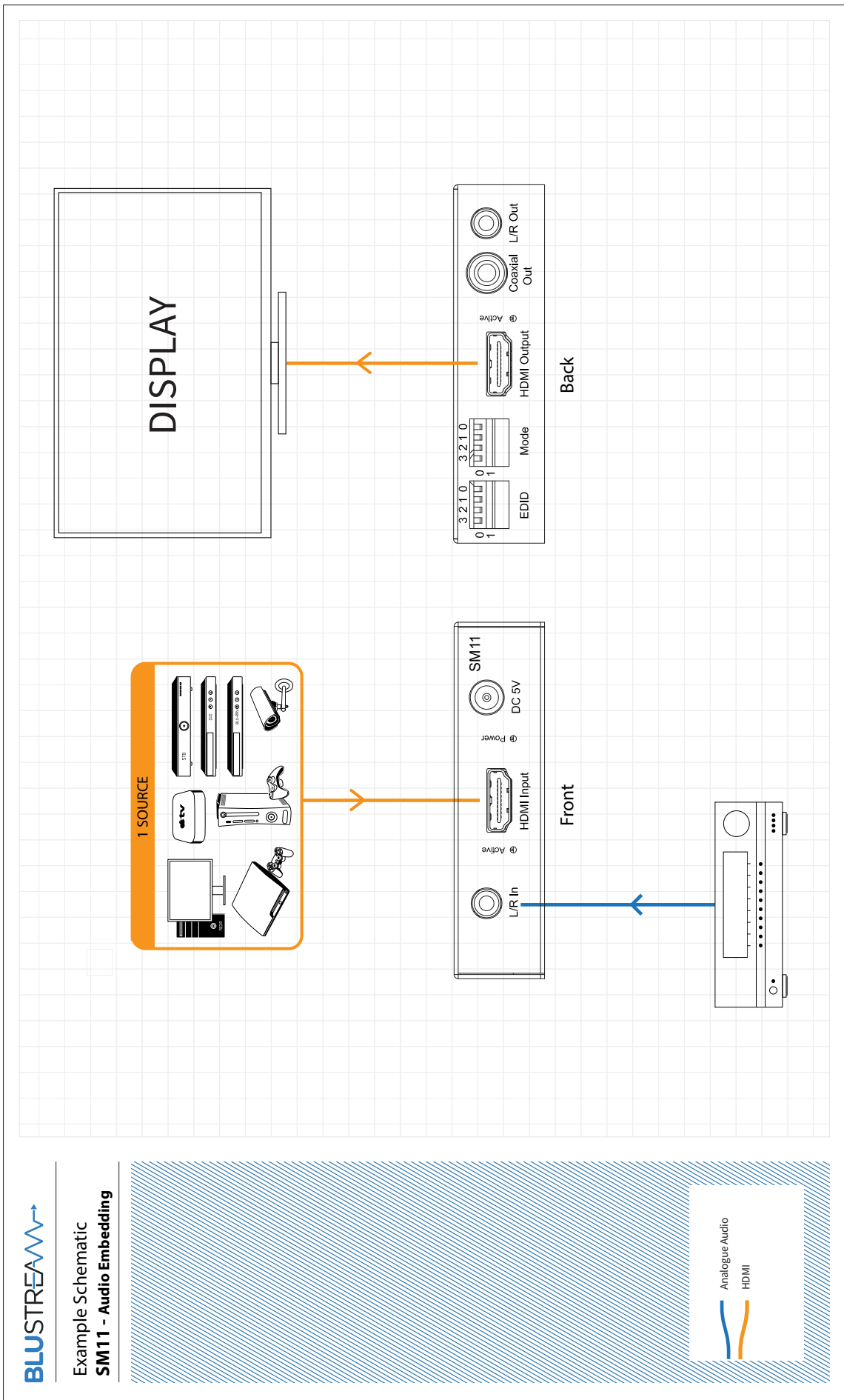
The SM11 can be used to help resolve HDCP issues.

Position = 0 (up) - HDCP management mode

Position = 1 (down) - HDCP bypass

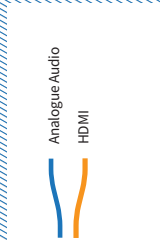
## DIP switch 0:

Reserved / not in use - leave in '0' position



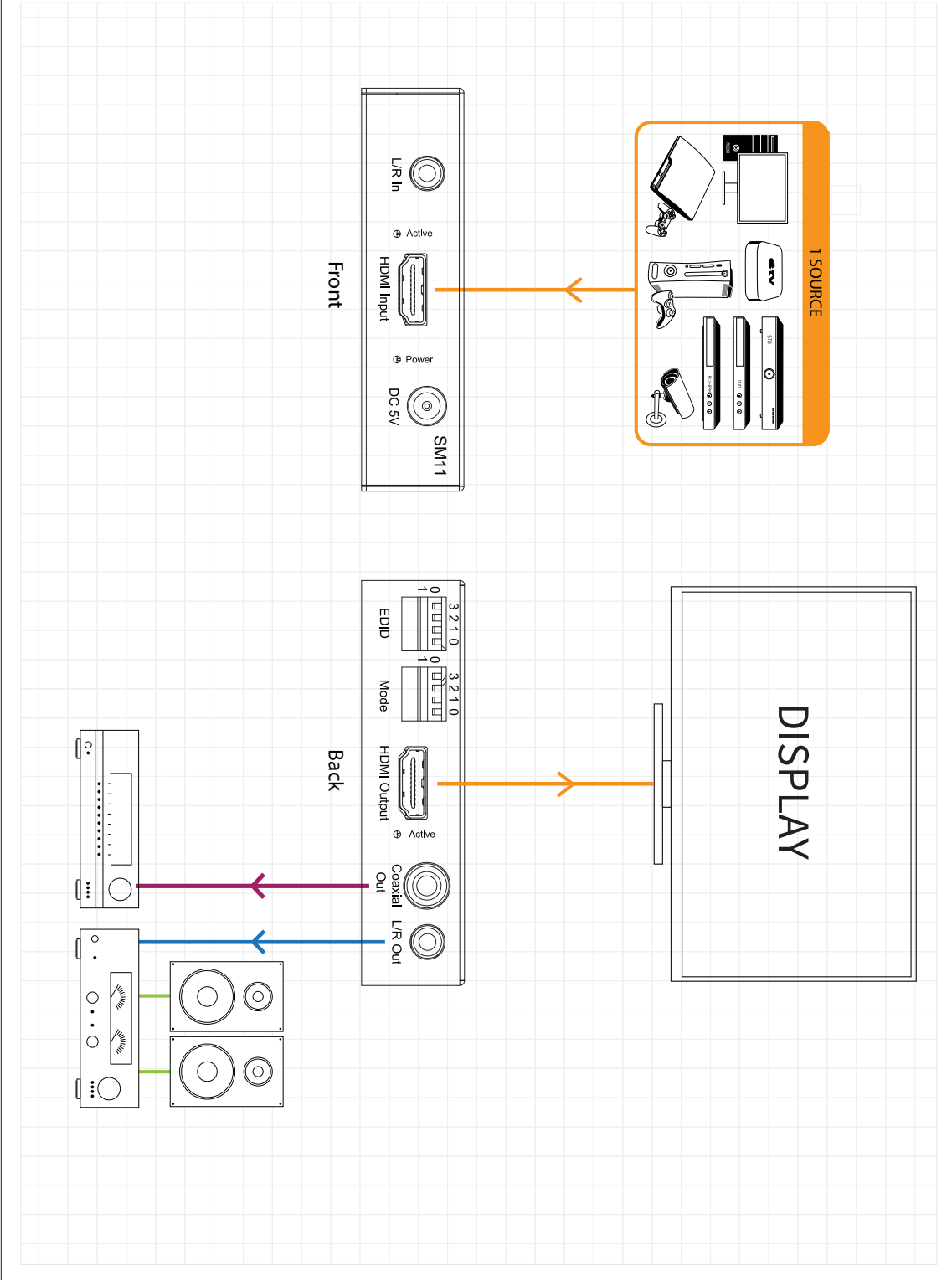
BLUSTREAM

Example Schematic  
SM11 - Audio Embedding



**BLUSTREAM**

Example Schematic  
SM11 - Audio De-embedding





## Specifications

- **Audio Input Connector:** 1 x Analogue left/right audio (3.5mm stereo jack)
- **Audio Output Connectors:** 1 x RCA (S/PDIF); 1 x analogue left / right audio (3.5mm stereo jack)
- **Video Input Connector:** 1 x HDMI Type A, 19-pin, female
- **Video Output Connector:** 1x HDMI Type A, 19-pin, female
- **Mounting Kit Included**
- **Dimensions (W x D x H):** 105mm x 87mm x 23mm (without connections)
- **Shipping Weight:** 0.5kg
- **Power Supply:** 5V/1A DC, screw type connector
- **Operating Temperature:** 32°F to 104°F (0°C to 40°C)
- **Storage Temperature:** -4°F to 140°F (-20°C to 60°C)

## Package Contents

- 1 x SM11
- 1 x 5V/1A DC Power Supply
- 1 x Mounting Kit
- 1 x User Manual

## Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

Components inside this unit are not user serviceable. Do not remove the protective cover from the unit. Removing any panel from this product will invalidate the manufacturers warranty.

## Certifications

### FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**CAUTION** - changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### CANADA, INDUSTRY CANADA (IC) NOTICES

This Class B digital apparatus complies with Canadian ICES-003. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

### CORRECT DISPOSAL OF THIS PRODUCT

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.







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