



# User Manual

## **SY-AD-18G**

### **18G HDMI 2.0 Audio De-Embedder**

Balanced, Un-balanced Analogue and Digital Coax S/PDIF

This HDMI 2.0 audio de-embedder supports all HDMI signals up to 18Gbps (4K60 4:4:4) with HDR, EDID and CEC pass-through. It de-embeds the HDMI input audio to analogue balanced, unbalanced and coax S/PDIF simultaneously for the Pass-through and 2Ch modes, or to digital coax audio only when set to the Bitstream mode.

This de-embedder will be useful for any situation where the audio needs to be processed separately from the HDMI signal, such as Video processors or projectors. It is capable of handling all HDMI resolutions, including the growing 18G sector.

## Features

- Balanced and Unbalanced audio outputs for L+R and Coax S/PDIF
- Supports three audio input modes: Pass-Through, Bitstream and PCM
- LPCM 2ch, Dolby 2 / 5.1 Ch and DTS 2 / 5.1 Ch
- HDMI HBR (High Bit Rate) supported in PASS mode only
- Resolutions up to HDMI 2.0 4K60 4:4:4 (18Gbps), HDR
- HDCP 1.4/2.2 supported on HDMI IN – EDID and CEC pass-through
- HDCP 1.4 only on HDMI OUT
- Audio de-embed even when no display connected

## Panel Descriptions



Figure 1 - Front



Figure 2 - Rear

### Front

Name	Description
<b>Power LED</b>	RED – Powered with no HDMI input GREEN when an HDMI input signal is detected
<b>Switch</b>	Set Audio mode to EDID Pass-through, Bitstream or 2ch Only
<b>HDMI IN</b>	HDMI Input connector from HDMI source
<b>Service</b>	Only for service
<b>PSU</b>	12V DC PSU input

### Rear

Name	Description
<b>HDMI Out</b>	HDMI Output connector to HDMI sink
<b>5 way block</b>	Pluggable screw terminal for balanced L/R analogue audio
<b>L Phono &amp; R Phono</b>	Phono connectors for unbalanced L/R analogue audio
<b>COAX Phono</b>	Digital audio output

## System Connection

The AD-18G can be located anywhere in the HDMI cabling, the following diagram is only an installation example.

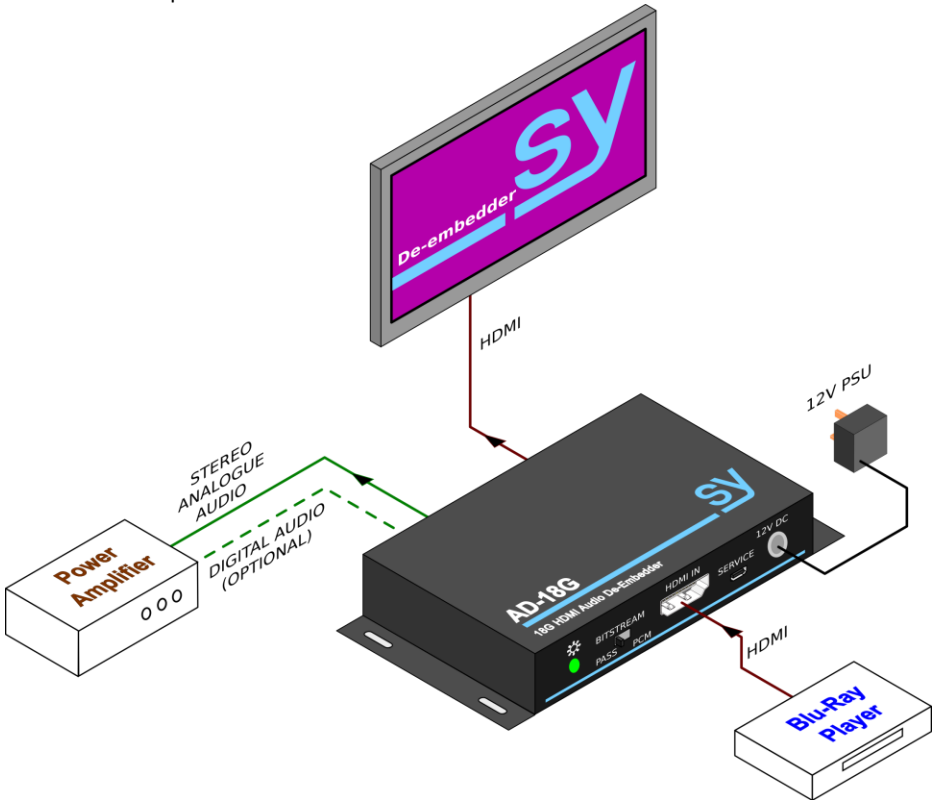


Figure 3 - SY-AD-18G Connection

## Power LED

The front panel power LED will be either red or green when the de-embedder is powered:

- **Red** indicates that the AD-18G is powered but there is no HDMI input signal present.
- **Green** indicates that the AD-18G is powered and the HDMI input signal is present.

## Switch Settings

The AD-18G can operate in one of three modes that sets the HDMI IN EDID:

1. **Pass** – Use the audio settings given in the display EDID
2. **Bitstream** – Only provide S/PDIF digital audio output
3. **2CH** – Force 2 channel LPCM mode only

The following table summarises the audio outputs that are active for each setting:

Mode	Analogue Audio	Digital Audio
Pass	Yes	Yes
Bitstream	No	Yes
PCM	Yes	Yes

## Output Connectors

The AD-18G provides up to four connection modes:

1. Balanced stereo analogue audio on the 5-way pluggable connector
2. Unbalanced stereo analogue audio on the 5-way pluggable connector
3. Unbalanced stereo analogue audio from the L & R phono connectors
4. Digital S/PDIF audio from the COAX phono connector

### Balanced Audio Output Wiring

All five connections are required when using balanced audio, be sure to note the polarity of the output signals and ensure that they are wired correctly to the amplifying equipment.

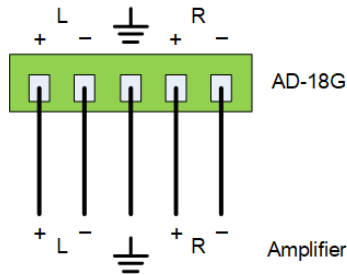


Figure 4 - Balance Audio Wiring

### Unbalanced Audio Output Wiring

Only three connections are required when using unbalanced audio from the 5-way pluggable block. Only use left and right signals that have the same polarity symbol when using this configuration.

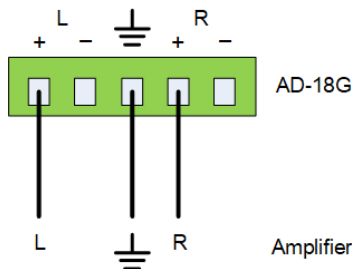


Figure 5 - Unbalanced Audio Wiring

# Troubleshooting

The following table lists some of the basic checks that should be performed before determining that the product may be faulty:

Problem	Possible cause	Solutions to try first
<b>Power LED off</b>	PSU problem	<ul style="list-style-type: none"><li>• Check that PSU output voltage is correct and the current rating is sufficient to power the product.</li><li>• Check that connection polarity is correct – This product uses centre positive connection.</li></ul>
<b>Power LED red</b>	No HDMI Input	<ul style="list-style-type: none"><li>• Check that the HDMI source is outputting an image.</li><li>• Check that the HDMI cables are good and properly connected.</li></ul>
<b>Power LED green, but no image</b>	HDMI output	<ul style="list-style-type: none"><li>• Check that the HDMI sink is on.</li><li>• Check that correct input is selected on the HDMI sink device.</li><li>• Check that the HDMI cables are properly connected.</li></ul>
<b>No analogue audio</b>	Switch setting	<ul style="list-style-type: none"><li>• Analogue audio is only available when the switch is in either the PASS or the 2CH position.</li><li>• Check the wiring of the audio connections.</li></ul>
<b>Lack of centre in stereo image</b>	Phasing error	<ul style="list-style-type: none"><li>• Check the wiring of the analogue audio connections is correct at the 5-way pluggable block and the amplifier input. The polarities used for both the left and right channels must be identical for both the SY-AD-18G and the amplifier input.</li></ul>
<b>No digital audio</b>	S/PDIF	<ul style="list-style-type: none"><li>• Check that the wiring to the COAX output is correct.</li><li>• Check that the equipment receiving the digital audio is able to do so.</li><li>• Ensure that the receiving equipment has its digital audio input enabled and/or selected.</li></ul>

# Specifications

## General

<b>HDMI Video Resolution</b>	VESA and SMPTE 480p to 2160p with 3D. All HDMI resolutions to 3840x2160p @60Hz 4:4:4 (18 Gbit/s)  480p@60Hz                      576p@50Hz                      720p@60Hz 1080p@24Hz                      1080p@50Hz                      1080p@60Hz 4K@24Hz                          4K@30Hz                          4K@60Hz 4:4:4  All PC resolutions to 1920x1200@60Hz
<b>HDMI Version</b>	2.0 – All HDMI versions to 2.0v
<b>HDCP Version (Input)</b>	1.4 and 2.2
<b>HDCP Version (Output)</b>	1.4 Only
<b>Coax digital audio format</b>	LPCM 2ch, Dolby Digital 2 or 5.1ch, DTS 2 or 5.1ch
<b>Input Connectors</b>	1x HDMI 1x 2.1mm DC connector
<b>Output Connectors</b>	1x HDMI 1x 5 way pluggable screw terminal for L+R balanced 2x Phono for L+R unbalanced 1x Phono for Coax S/PDIF
<b>Power Supply</b>	12V DC @ 1A max.
<b>Power Consumption</b>	3W max.

## Environmental

<b>Operating Temperature</b>	-10 to +55°C (+14 to +131°F)
<b>Operating Humidity</b>	10 to 90 % RH (non-condensing)
<b>Weight</b>	245g

## Physical

<b>Dimensions (WxHxD)</b>	129 x 21.5 x 77mm
<b>Case Material</b>	Steel chassis

## Part Number

<b>SY-AD-18G</b>	18G Audio De-Embedder
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## Safety Instructions

To ensure reliable operation of this product as well as protecting the safety of any person using or handling these devices while powered, please observe the following instructions.

1. Use the power supply provided. If an alternate supply is required, check the voltage, polarity and that it has sufficient power to supply the device it is connected to.
2. Do not operate this product outside the specified temperature and humidity range given in the above specifications.
3. Ensure there is adequate ventilation to allow this product to operate efficiently.
4. Repair of this equipment should only be carried out by qualified professionals as this product contains sensitive devices that may be damaged by any mistreatment.
5. Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with this product.

## After Sales Service

1. Should you experience any problems while using this product, firstly refer to the Troubleshooting section in this manual before contacting SY Technical Support.
2. When calling SY Technical Support, the following information should be provided:
  - Product name and model number
  - Product serial number
  - Details of the fault and any conditions under which the fault occurs.
3. This product has a two year standard warranty, beginning from the date of purchase as stated on the sales invoice. For full details please refer to our Terms and Conditions.
4. SY Product warranty is automatically void under any of the following conditions:
  - The product is already outside of its warranty period
  - Damage to the product due to incorrect usage or storage
  - Damage caused by unauthorised repairs
  - Damage caused by mistreatment of the product
5. Please direct any questions or problems you may have to your local dealer before contacting SY Electronics.

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