HDMI Extender over Single Coax
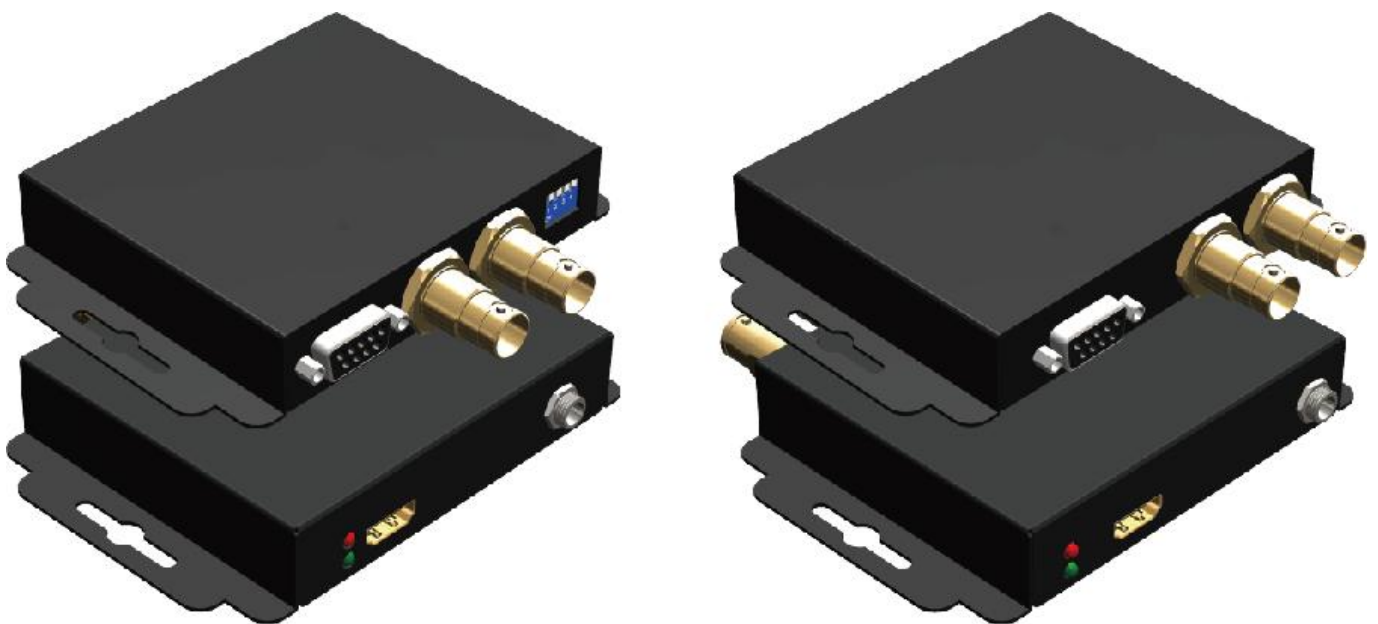# with RS-232,local loop out, POC(Power over Cable)

Safety and Notice

The **AV-GM0463-S1** HDMI Extender over Single Coax with RS-232, local loopout has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM0463-S1** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.

- Do not attempt to service this unit yourself, except where explained in this manual.

- Provide proper ventilation and air circulation and do not use near water.

- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.

- Use only the power adapter and power cords and connection cables designed for this unit.

- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

TABLE OF CONTENTS

INTRODUCTION

The **AV-GM0463-S1** HDMI Extender over Single Coax with RS-232 boosts up your HDMI transmission range up to 90m (295t) in HDTV 1080p format through single coaxial cable. AV-GM0463-S1 is easy to install and works perfectly with Belden 1694A coaxial cables. Other coaxial cables can also work with AV-GM0463-S1 and the transmission distance depends upon the quality and bandwidth of coaxial cables. In addition, AV-GM0463-S1 is also equipped with RS232 local loopout. This bonus feature allows users to rely on the same coax cable to have RS-232, such as TV and BD players, and AV-GM0463-S1 makes RS-232 control possible through only single coax cable along with high quality HDMI A/V signals.

The AV-GM0463-S1 includes two units: transmitting (AV-GM0463-S1[TX]) and receiving (AV-GM0463-S1[RX]) units. The transmitting unit is used to capture the HDMI and HDCP input signals and carry the signals through only coaxial cable. The receiving unit is responsible for auto equalizing the transmitted HDMI multimedia data. The transmission range between the sending and receiving units can be up to 90m (295t) under Full HD (1080p) with 7.1 channel audio.

FEATURES

- Support HDMI Deep Color
- HDCP compliant
- Single coaxial cable
- 7.1-channel audio supported
- Extends the transmission range up to 90m (295ft) from the HDMI sources under Full HD resolution (1080p60 24-bit color depth) through Belden 1694A coaxial cable.
- Video resolutions support 480i, 576i, 720p, 1080i, and 1080p
- RS-232 control
- Wall mounting housing design for easy and robust installation

> The length depends on the characteristics and quality of the coax cables. Higher resolutions and longer transmission distances require low skew cables for best performance. Solid and shielded coax cable such as Belden 1694A with metal 75ΩBNC connectors is recommended.

PACKAGE CONTENTS

- 1x AV-GM0463-S1 [TX & RX]
- 1x DC 12V 5A wall wart
- 1x User Manual

SPECIFICATIONS

Model Name	AV-GM0463-S1	
Technical	**AV-GM0463-S1[Tx]**	**AV-GM0463-S1[Rx]**
Role of usage	Transmitter [TX]	Receiver [RX]
HDMI compliance	HDMI Deep Color	
HDCP compliance	Yes	
Video bandwidth	Single-link 225MHz [6.75Gbps]	
Video support	480i / 720p / 1080i / 1080p60 (Does NOT support 480p)	
Audio support	Surround sound (up to 7.1ch) or stereo digital audio	
HDMI over Coax transmission range	Full HD [1080p 24-bit color] – up to 90m [295ft]	
HDMI Equalization	Auto	
Input TMDS signal	1.2 Volts [peak-to-peak]	
Input DDC signal	5 Volts [peak-to-peak, TTL]	
ESD protection	[1] Human body — ±19kV [air-gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±4kV	
PCB stack-up	6-layer board [impedance control — differential 100Ω; single 50Ω]	
Input	1x HDMI	1x BNC RS-232
Output	1x BNC RS-232	1x HDMI
IR remote control	Electro-optical characteristics: ⬜ = 25° / Carrier frequency: 20-60kHz	
HDMI connector	Type A [19-pin female]	
BNC connector	75Ω interlocking socket	
Mechanical		
Housing	Metal enclosure	
Dimensions [L x W x H] — Model	79 x 84 x 27mm [3.1" x 3.3" x 1"]	
Dimensions [L x W x H] — Package	175 x 270 x 80mm [6.9" x 10.4" x 3.1"]	
Dimensions [L x W x H] — Carton	370 x 450 x 300mm [1.3" x 1.6" x 1"]	
Weight — Model	250g [8.8oz]	
Weight — Package	622g [1.37 lbs]	
Fixedness	Interlocking power supply	
Power supply	12V 5A DC	
Power consumption	6 Watt [max]	
Operation temperature	0~40°C [32~104°F]	

| Storage temperature	-20~60°C [-4~140°F]
Relative humidity	20~90% RH [no condensation]

PANEL DESCRIPTIONS

Transmitting unit ► AV-GM0463-S1-TX

Front Panel
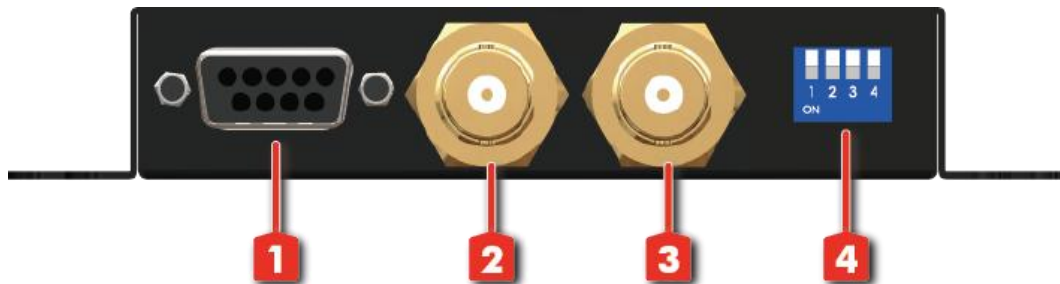
1. RS-232: Connect to PC serial port with a DSUB-9 male-male cable here

2. COAX OUT: Connects to a high standard coaxial cable here

3. COAX OUT: Connects to a high standard coaxial cable here

4. SW Main: DIP switches *(see DIP Switch section)*

Rear Panel
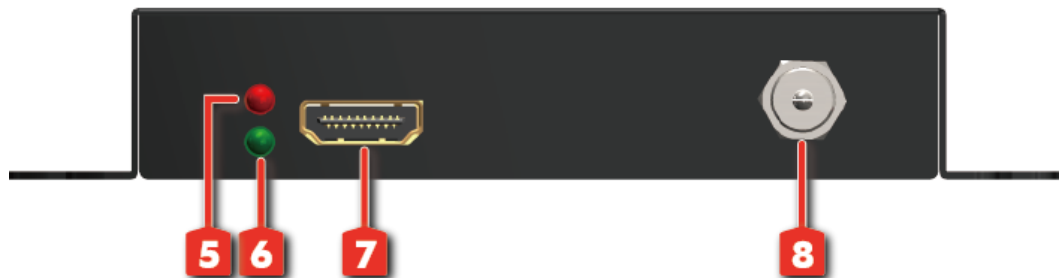
5. POWER: Red light - POWER

6. SIGNAL LED: Green light - SIGNAL ACTIVE

7. HDMI IN: Connects to a HDMI source device with a HDMI male-to-male cable here

8. +12V DC: Connects to 12V DC power supply

Receiving unit ► AV-GM0463-S1-RX

Front Panel

9. RS-232: Connect to PC serial port with a DSUB-9 male-male cable here

10. COAX IN: Connect to a high standard coaxial cable here

11. Coaxial local loopout

Rear Panel

12. POWER: Red light - POWER

13. SIGNAL LED: Green light - SIGNAL ACTIVE

14. HDMI OUT: Connects to a HDMI display with a HDMI male-male cable here

15. +12V DC: Connects to 12V DC power supply

EDID LEARNING

1. Please make sure the Pin #1 - Pin #2 of DIP switch is at On-On [⬛-⬛].

2. Connect the HDMI display to the HDMI port of TX.

3. Power on TX.

4. The green LED in the transmitting module will light up indicating the EDID learning procedure is complete.

5. Please DO NOT change the DIP switch, otherwise the built-in EDID Learning information will be lost.

CONNECTION DIAGRAM

EYE PATTERN

First Display
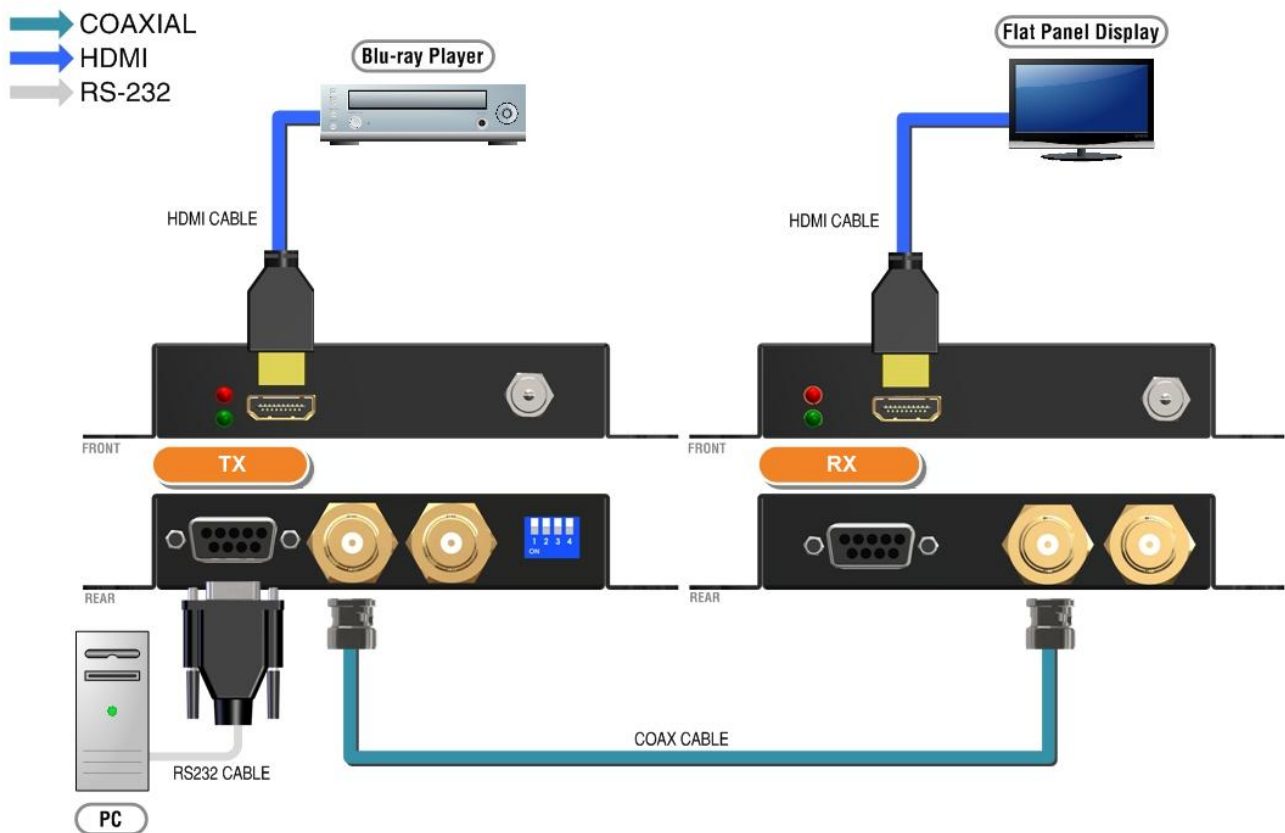
Video Session

Input:	SDI A	Data Collect:	Running	
Signal:	Locked	Run Time:	0 d, 03:20:06	
Format:	Auto 1080i 59.94 – HD SDI 422			
352M Payload:	85h 0Ah 80h 01h			
SAV Place Err:	OK	Y Stuck Bits:	———— ———— LL	
Field Length Err:	OK	C Stuck Bits:	———— ———— LL	
Line Length Err:	OK			
Line Number Err:	OK			
Ancillary Data:	Y and C Present			

Statistics	Status	Err Secs	Err Fields	% Err Fields
RGB Gamut Error	—r———	3684	215115	91.1083 %
Cmpst Gamut Error	OK	368	20546	8.7019 %
Luma Gamut Error	OK	22	182	0.0771 %
Y Chan CRC Error	OK	1695	3705	0.7836 %
C Chan CRC Error	OK	1695	3705	0.7836 %
Y Anc Checksum Error	OK	24	24	0.0050 %
C Anc Checksum Error	OK	25	25	0.0052 %

Changed since reset: N/A   "arrow key" stops/starts.

SDI Status

0 UI   0.70 1.00   1.70 UI   0 dB   2.10 3.0   5.10 dB

Jitter1 HPF:	10 Hz Timing	
P–P:	0.08 ns	0.12 UI

0 UI   0.14 0.20   0.34 UI

Jitter2 HPF:	100 kHz Alignment	
P–P:	0.04 ns	0.05 UI

Cable Loss (HD):	0.29 dB
Approx Cable (HD):	4 Meters
Source Level (HD):	736 mV
Cable Type:	Belden 8281

Eye Waveform

600 mV

P–P: 0.04ns 0.06 UI

400 mV
200 mV
-200 mV
-400 mV
-600 mV 3 Eye

Jitter2 HPF 100 kHz – Alignment   200 ps/Div

1080i 59.94		Dec 19 22:15:03
SDI Input A	RGB Gamut Error	ID: DEFAULT
Ref: Internal		Embd: PPPP PPPP ———— ————

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Second Display

Video Session

Input:	SDI A	Data Collect:	Running	
Signal:	Locked	Run Time:	0 d, 03:16:19	
Format:	Auto 720p 59.94 – HD SDI 422			
352M Payload:	84h 4Ah 80h 01h			
SAV Place Err:	OK	Y Stuck Bits:	———— ———— LL	
Field Length Err:	OK	C Stuck Bits:	———— ———— LL	
Line Length Err:	OK			
Line Number Err:	OK			
Ancillary Data:	Y and C Present			

Statistics	Status	Err Secs	Err Fields	% Err Fields
RGB Gamut Error	OK	3655	214337	95.6913 %
Cmpst Gamut Error	C—	169	9236	4.1234 %
Luma Gamut Error	OK	20	153	0.0683 %
Y Chan CRC Error	OK	1644	3527	0.7863 %
C Chan CRC Error	OK	1644	3527	0.7863 %
Y Anc Checksum Error	OK	21	21	0.0046 %
C Anc Checksum Error	OK	21	21	0.0046 %

Changed since reset: N/A   "arrow key" stops/starts.

SDI Status

0 UI   0.70 1.00   1.70 UI   0 dB   2.10 3.0   5.10 dB

Jitter1 HPF:	10 Hz Timing	
P–P:	0.07 ns	0.10 UI

0 UI   0.14 0.20   0.34 UI

Jitter2 HPF:	100 kHz Alignment	
P–P:	0.05 ns	0.08 UI

Cable Loss (HD):	0.29 dB
Approx Cable (HD):	4 Meters
Source Level (HD):	728 mV
Cable Type:	Belden 8281

Eye Waveform

600 mV

P–P: 0.05ns 0.08 UI

400 mV
200 mV
-200 mV
-400 mV
-600 mV 3 Eye

Jitter2 HPF 100 kHz – Alignment   200 ps/Div

720p 59.94		Dec 19 22:11:16
SDI Input A	Cmpst Gamut Error	ID: DEFAULT
Ref: Internal		Embd: PPPP PPPP ———— ————

Tektronix

HDMI PIN DEFINITION
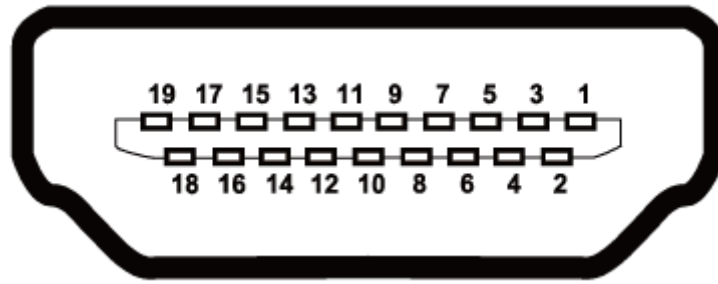
Type A (Receptacle) HDMI

Pin 1	TMDS Data2+	Pin 11	TMDS Clock Shield
Pin 2	TMDS Data2 Shield	Pin 12	TMDS Clock–
Pin 3	TMDS Data2–	Pin 13	NC
Pin 4	TMDS Data1+	Pin 14	Reserved (N.C. on device)
Pin 5	TMDS Data1 Shield	Pin 15	SCL
Pin 6	TMDS Data1–	Pin 16	SDA
Pin 7	TMDS Data0+	Pin 17	DDC/CEC Ground
Pin 8	TMDS Data0 Shield	Pin 18	+5V Power
Pin 9	TMDS Data0–	Pin 19	Hot Plug Detect
Pin 10	TMDS Clock+		

NOTICE

Since AV-GM0463-S1 is sensitive to the HDMI source's input jitters, the input HDMI signals with larger jitters will shorten the transmission distance hugely, especially for full HD 1080p@60!

1. The lab testing result shows that Belden 1694A coaxial cables can transmit HDMI signals up to 90m (295ft).

2. If your HDMI display has multiple HDMI inputs, it is found that the first HDMI input [HDMI input #1] generally can produce better transmission performance among all HDMI inputs.

3. Please noticed that audio must be 48KHz and 480p is not supported.

WARRANTY

The SELLER warrants the **AV-GM0463-S1** HDMI Extender over Single Coax with RS-232 local loopout free from defects in the material and workmanship for 3 years from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 3 years warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding the **AV-GM0463-S1** features and specifications is subject to change without further notice.

Support
For more info or tech support
http://www.siig.com/support

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