



2x8 HDMI Splitter/Repeater over Cat.X with Local Out



To avoid EMI issue, complete STP Cat6 cable is strongly recommended!

P/N: AV-GM06B3-S1



Safety and Notice

The **AV-GM06B3-S1 2x8 HDMI Splitter/Repeater over Cat.X with Local Out** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM06B3-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.



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INTRODUCTION

The **AV-GM06B3-S1 2x8 HDMI Splitter/Repeater over Cat.X with Local Out** allows you to distribute one of the two HDMI/DVI video sources up to 8 separate HDTV displays including one remotely cascade output via Cat-5/5e cost effective cable. This splitter offers the most flexible solution by which the high definition video and high quality audio can be transmitted to different local locations through HDMI cables and also to the next stage over a long distance without degrading the quality. The cascade ability allows pure digital video and audio broadcast station by station and therefore make extending HDMI compliant video and audio anywhere feasible.

FEATURES

- State-of-the-art Silicon Image (founder of HDMI) chipset embedded for utmost compatibility and reliability
- Support HDMI Deep Color & 3D / DVI 1.0 compliant
- HDCP 1.1 compliant
- HDMI video distribution to up to 7 displays and one Cat.X Receiver or cascade to another AV-GM06B3-S1
- Acts as a 2x1 HDMI switch plus a 1x8 HDMI over Cat5 splitter
- Minimizes the cable skew by adjustable 8-level equalization control
- Regenerates the HDMI signal
- Supports default HDMI EDID and has the ability to learn the EDID of displays
- Up to 50m (165ft) at 720P/1080i and 40m (130ft) at 1080p through Cat-5e cables
- Inputs up to 15m (50ft) using HDMI cables
- Outputs up to 15m (50ft) using HDMI cables
- Pure unaltered uncompressed 7.1ch digital HDMI over UTP cable transmission
- Allows cascading
- Perfectly integrated with other HDMI over Cat.X series products
- 1RU rack mountable with interlocked power supply unit for fixedness



The length depends on the characteristics and quality of the cables. Higher resolutions and longer transmission distances require low skew cables (<25ns/100m) for best performance. Unshielded CAT6 with metal RJ45 connectors is recommended.

PACKAGE CONTENTS

- 1x AV-GM06B3-S1
- 1x DC 5V 4A in-line with C7 power cord
- 1x Rack-mounting ear set
- 1x User Manual

SPECIFICATIONS

Model Name	AV-GM06B3-S1	CE-H20111-S1	CE-H20211-S1
Technical			
Role of usage	2x8 Distribution Amplifier Transmitter [TX]	Receiver [long range RX]	Receiver [short range RX]
HDMI compliance	HDMI Deep Color & 3D		
HDCP compliance	Yes		
Video bandwidth	Single-link 225MHz [6.75Gbps]		
Video support	480i / 480p / 720p / 1080i / 1080p60 up to 36-bit color		
Transmission over UTP cable (24-bit)	Full HD (1080p)-40m (130ft) [CAT.X] HD (720p/1080i)-50m (165ft) [CAT.X]		
Audio support	Surround sound (up to 7.1ch) or stereo digital audio		
Equalization	Adjustable 8-level digital	Adjustable 8-level digital	None
Input TMDS signal	1.2 Volts [peak-to-peak]		
Input DDC signal	5 Volts [peak-to-peak, TTL]		
ESD protection	[1] Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±8kV		
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]		
Input	1x HDMI + 1x RJ-45	1x RJ-45	1x RJ-45
Output	7x HDMI + 1x RJ-45	1x HDMI	1x HDMI
HDMI connector	Type A [19-pin female]	Type A [19-pin female]	Type A [19-pin male]
RJ-45 connector	WE/SS 8P8C with 2 LED indicators		
DIP switch [AV-GM0693-S1]	2-pin for EDID learning and audio setting modes		
Rotary control switch	8-Signal level equalization	8-Signal level equalization	None
Mechanical			
Housing	Metal enclosure	Metal enclosure	Plastic molding
Dimensions [L x W x H]	Model	340 x 104 x 43mm [1'2" x 4.1" x 1.7"]	93 x 90 x 25mm [3.7" x 3.5" x 1"]
	Package	494 x 225 x 70mm [1'6" x 8.9" x 2.8"]	175 x 270 x 80mm [6.9" x 10.6" x 3.2"]
	Carton	510 x 380 x 252mm [1'7" x 1'2" x 10"]	450 x 370 x 300mm [1'6" x 1'3" x 11.8"]
Weight	Model	1400g [3.1 lbs]	175g [6.2oz]
	Package	1800g [4 lbs]	475g [1 lbs]
Fixedness	1RU rack-mount with ears	Wall-mounting case with screws	Direct plug-in

Power supply	5V 4A DC	5V 2A DC	None
Power consumption	13 Watts [max]	1.5 Watt [max]	0.1 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

Front Panel



1. 1.2a / 1.3a: Output format LED indicator [Green: HDMI 1.3 / Red: HDMI 1.2]
2. HDMI Output select: Push button for HDMI output format selection
3. INPUT 1 / INPUT 2: Input LED indicator [Green: HDMI input / Red: RJ45 input]
4. HDMI Input select: Push button for input HDMI source selection

Rear Panel



5. DIP Switch: EDID/Audio setting [see DIP SWITCH SETTING section]
6. Signal Level: Rotary control for equalizer setting [see ROTARY CONTROL section]

7. **HDMI Signal IN:** for cascading from another AV-GM06B3-S1 or CE-H21W11-S1
8. **HDMI INPUT:** for connecting to video source, CE-H21V11-S1, AV-GM0693-S1, or another AV-GM06B3-S1
9. **HDMI Signal OUT:** for connecting to display through CE-H20111-S1 or CE-H20211-S1; or for cascading to another CE-H21W11-S1 or AV-GM06B3-S1
10. **HDMI OUTPUT 1-7:** for connecting to display through HDMI cable or through Cat-5e cable with CE-H20211-S1 attached; or for cascading to another CE-H21V11-S1, AV-GM0693-S1, or AV-GM06B3-S1.
11. **+5V DC:** connect to 5V 4A DC interlocking power adapter
12. **Power:** Power ON/OFF switch

DIP SWITCH SETTING

DIP Switch Position		Video	Audio	Description
Pin#1	Pin#2			
OFF [□]	OFF [□]	Up to 1080p	Surround 1	Default Mode 2 — Up to 1080p video & surround sound audio output up to 7.1ch (DTS-HD & Dolby TrueHD)
OFF [□]	ON [□]	Up to 1080p	Stereo	Safe Mode 3 — Enforce the system output at 1080p video and stereo audio for basic compatibility among HDTV
ON [□]	OFF [□]	Bypass 4	Bypass 4	EDID Learning 5 Mode — for learning EDID from the display while playing any received HDMI audio format
ON [□]	ON [□]	Bypass	Stereo	EDID Learning 5 & Stereo Mode — for learning EDID from the display while enforcing stereo output if any HDTV cannot play surround sound normally

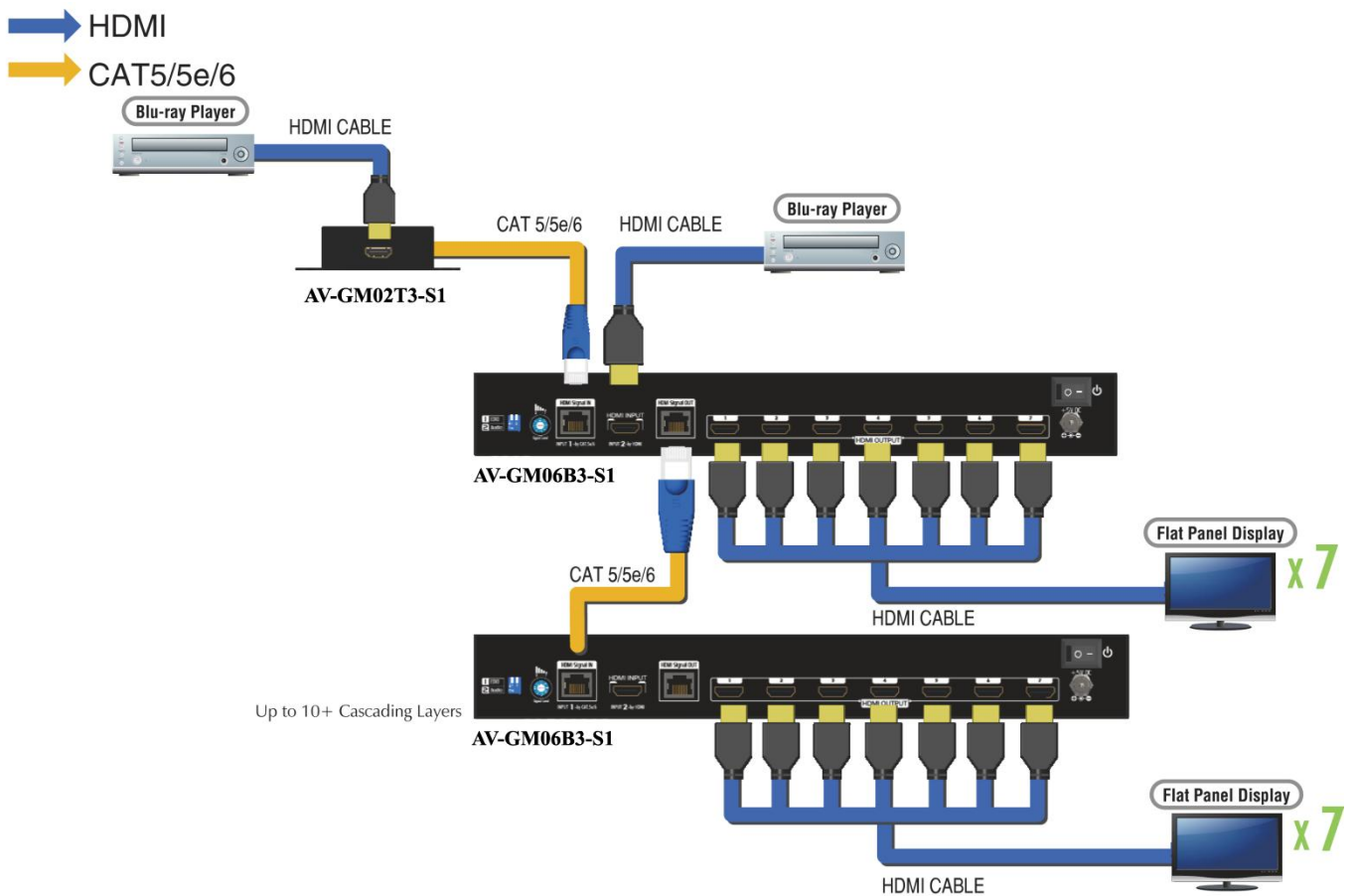
Note

- 1** If the HDTV shows video but without audio, please try to set audio mode to stereo.
- 2** Factory default setting of [SW1] is pin-1 at OFF [▲] & pin-2 at OFF [▲] for 1080p video and surround sound audio.
- 3** If you encounter any unsolved audio/video output problem during system installation, please turn any [SW1] to pin-1 at OFF [▲] & pin-2 at ON [▼] for safe mode to enforce the system output up to 1080p video and stereo audio for system check. However, the safe mode cannot be initiated if your HDMI source is set to enforce 1080p output. In this case, please reconfigure your HDMI source to all resolution output for troubleshooting.
- 4** Bypass means the matrix will maintain playing the original format of HDMI signals in video and perhaps audio. By setting at this mode, the users may encounter compatibility issue among different kinds of HDMI sources and displays. If you cannot get the audio and/or video output normally at the system installation, please change the DIP switch setting to default mode or even safe mode to verify the functionality of the device.
- 5** To learn the EDID of HDMI display for respective HDMI source devices, please see the **[EDID Learning]** section in the next page for more detail information.

HARDWARE INSTALLATION

1. Connect Cat-5e cable if using any Cat-5e HDMI video transmitter as cascading source
2. Connect HDMI input to HDMI compliant sources (such as a Blu-ray Disc player)
3. Connect all HDMI outputs to the HDMI displays
4. Connect RJ45 output to HDMI over CAT5 receiver through Cat-5e cable
5. Plug in 5V 4A DC power supply.
6. Power on the AV-GM06B3-S1
7. Power on the HDMI displays.
8. Power on the HDMI source(s).

CONNECTION DIAGRAM



ROTARY CONTROL



In order to adapt the CAT5 cable, AV-GM06B3-S1 offers 8-level equalization control on the received HDMI signal level. 0-to-7 = strongest-to-weakest signal level for respective transmission length [long to short]. It is recommended to switch from 7 to 0 to find the optimal visual experience.

HDMI OUTPUT FORMAT SELECTION

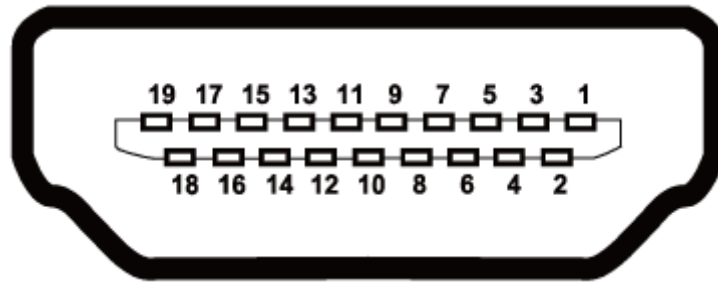
When input signal exists, the output format LED turns on. If the input HDMI source is HDMI 1.3 format, you can set the output format to HDMI 1.2 mode and Red LED will be on. If the input HDMI source is HDMI 1.2, the output format is always set to HDMI 1.2. The main purpose of lower the HDMI 1.3 resolution [36~48-bit color depth] to HDMI 1.2 [24-bit color depth] is to increase the transmission distance without creating noticeable video quality distortion still at 1080p. By pressing the push-in button, users can enforce the HDMI output at HDMI 1.2 format for longer transmission to the display. The AV-GM06B3-S1 cannot upgrade the HDMI 1.2 source content to become HDMI 1.3 format.

EDID LEARNING

1. Power up the AV-GM06B3-S1. Connect to **HDMI OUT7** with the display you want the AV-GM06B3-S1 to learn its EDID.
2. The AV-GM06B3-S1 is only bound to learn the EDID from the display for the HDMI source device connected to **HDMI IN2**. For HDMI signal input at RJ45 IN1, please use the transmitting device that sends the HDMI signals over CAT5 to the **HDMI Signal IN1** of the AV-GM06B3-S1 to learn the EDID of the display.
3. To learn the display's EDID for source device connected to **HDMI IN2**, pull both **DIP switch pin#1 & pin#2** up-and-down to stay at **ON[]-ON[]** and wait for about 5 seconds to complete the EDID learning process. You **DON'T NEED** to pull up the DIP switch again unless you want to learn another display's EDID by pulling both DIP switch pin#1 & pin#2 up-and-down one more time.

HDMI PIN DEFINITION

HDMI



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

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI or HDMI display EDID information.
2. All HDMI over Cat.X transmission distances are measured using Belden 1583A CAT5e 125MHz UTP cable and ASTRODESIGN Video Signal Generator VG-859C & VG-870B.
3. The transmission length is largely affected by the type of Cat-5/5e/6 cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid UTP cables (usually in the form of 330m bulk cables) can transmit a lot longer signals than stranded UTP cables (usually in the form of fixed length patch cords). Shielded STP cables are better suited than unshielded UTP cables. A solid UTP Cat-5e cable shows longer transmission range than stranded STP Cat-6 cable. For long extension applications, solid UTP/STP cables are the only viable choice.
4. EIA/TIA-568-B termination (T568B) for category cables is recommended.
5. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use double shielded STP cables to improve EMI problems, which is worsen in long transmission.
6. Because the quality of the CAT5/6 cables has the major effect on how long the transmission limit can achieve and how good is the received picture quality, the actual transmission range is subject to one's choice of Cat-5/5e/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.
7. 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.



WARRANTY

The SELLER warrants the **AV-GM06B3-S1 2x8 HDMI Splitter/Repeater over Cat.X with Local Out** 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-GM06B3-S1** features and specifications is subject to change without further notice.

Support

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