HDMI 1.3 over Single CAT5 Direct Plug-in Extender

Safety and Notice

The **AV-GM02R3-S1 HDMI 1.3over Single CAT5 Direct Plug-in Extender** has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the AV-GM02R3-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.

The **AV-GM02R3-S1 HDMI 1.3 over Single CAT5 Direct Plug-in Extender** boosts up your video/audio transmission distance up to 25m (80ft) in HDTV 1080i format. With only one cost effective LAN cable, users can directly plug the receiver in to HDTV sources from DVD players, Blu-ray Disc player, PS3, PC, and any other kinds of sources compliant with TMDS to distant display monitors including HDMI/DVI enabled TV sets or LCD PC monitors. This cost effective flexibility makes HDCP compliant DVD players or PS3 transmit high quality video and audio with a greater distance at the minimal cost, when integrating several components apart.

The AV-GM02R3-S1 includes two units: transmitting (AV-GM02R3-S1-TX) and receiving (AV-GM02R3-S1-RX) units. The transmitting unit is used to capture the input HDMI/DVI signals and carry the signals through one RJ-45 connector into one cost effective Cat-5/5e/6 cable. The transmission distance between the sending and receiving units can be up to 25m (80ft) under HD (720p/1080i) or 15m (50ft) under Full HD (1080p). With direct plug-in to the HDTV, users do not need to have to find a power outlet for the traditional HDMI over CAT5 receiver and can save an HDMI cable with ease of use.

Features

- State-of-the-art Silicon Image (founder of HDMI) chipset embedded for utmost compatibility and reliability

- HDMI 1.3c compliant

- Extend the transmission length up to 25m (80ft) from the HDMI sources under HD resolution (1080i or 720p)

- Extend the transmission length up to 15m (50ft) from the HDMI sources under Full HD resolution (1080p)

- HDCP compliant

- Pure unaltered uncompressed 7.1ch digital HDMI over UTP/STP cable transmission

- Allows direct plug-in to the HDMI displays

- Perfectly integrated with other HDMI over CAT5 series products

> *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 RJ-45 connectors is recommended.*

Specifications & Package Contents

| Model Name		AV-GM03E3-S1		AV-GM02R3-S1	
Technical		TX	RX	TX	RX
Role of usage		Transmitter [TX]	Receiver [RX]	Transmitter [TX]	Receiver [RX]
HDMI compliance		HDMI 1.3c			
HDCP compliance		Yes			
Video bandwidth		Single-link 225MHz [2.25Gbps]			
Video support		480i / 480p / 720p / 1080i / 1080p60 36-bit color depth			
Transmission over LAN	Full HD [1080p]	40m [130ft] for CAT5e 50m [165ft] for CAT6		15m [50ft] for CAT5e 18m [65ft] for CAT6	
	HD [1080i/720p]	50m [165ft] for CAT5e 60m [200ft] for CAT6		25m [80ft] for CAT5e 30m [100ft] for CAT6	
Audio support		Surround sound [up to 7.1ch) or stereo digital audio			
Equalization		8-level digital control at RX		No	
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 HDMI	1x RJ-45
Output		1x RJ-45	1x HDMI	1x RJ-45	1x HDMI
HDMI connector		Type A [19-pin female]			
RJ-45 connector		WE/SS 8P8C with 2 LED indicators			
Rotary switch		Mode	EQ	Mode	None
Mechanical		AV-GM03E3-S1	AV-GM03E3-S1	AV-GM02R3-S1-TX	AV-GM02R3-S1-RX
Housing		Metal enclosure	Metal enclosure	Metal enclosure	Plastic molding
Dimensions [L x W x H]	Model	[TX/RX] – 93 x 60 x 25mm [3.7"x2.4"x1"]		[TX] – 93 x 60 x 25mm [3.7"x2.4"x1"] [RX] – 45 x 25 x 22mm [1.8"x1"x0.9"]	
	Package	270 x 175 x 80mm [10.6"x6.9"x3.1"]			
	Carton	450 x 370 x 300mm (1'5.7"x1'2.6"x11.8"]			
Weight	Model	405g [14oz]		340g [12oz]	
	Package	815g [1.8 lbs]		685g [1.5 lbs]	
Fixedness		Wall-mounting case			
Power supply		5V 2A DC	5V 2A DC	5V 2A DC	None
Power consumption		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]			
Package Contents		1x AV-GM03E3-S1 2x 5V power adapter 1x User Manual		1x AV-GM02R3-S1 [TX & RX] 1x 5V power adapter 1x User Manual	

Front Panel — Transmitting Unit   AV-GM02R3-S1-TX
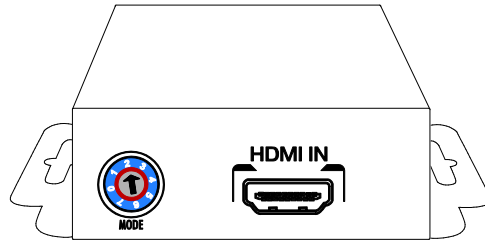
MODE: 0 = [Video] – supports up to HDMI 1.3 output. [Audio] – supports up to 7.1ch output

1 = [Video] – supports up to HDMI 1.3 output. [Audio] – locks to stereo audio output

2 = [Video] – locks to HDMI 1.2 output. [Audio] – supports up to 7.1ch output

3 = [Video] – locks to HDMI 1.2 output. [Audio] – locks to stereo audio output

4 = [Video] – DVI display mode. [Audio] – no audio output

5 = [Safe Mode] – uses default EDID[1] with video supported up to 1080p and stereo audio

6 = [Default Mode] – uses default EDID[2] with video supported up to 1080p and 7.1ch audio

7 = [EDID Learning Mode] – learns EDID[3] from the display

Note for EDID (Extended Display Identification Data) learning

1. *Please connect the display which you want to read EDID with a HDMI cable to the transmitter's HDMI-IN and turn Mode to 7 so the TX can learn the EDID information from the connected HDTV. The LED on the RJ45-OUT of TX will dim and light again in a few seconds, which indicates the EDID learning process is completed.*

2. *Turn Mode clockwise from Mode 7 to Mode 0 or Mode 1 for desirable audio setting and enjoy the experience. DO NOT let the rotary arrow pass by Mode 6 which will erase the EDID just learned and restore the default EDID.*

3. *If use Mode 6 EDID(1080p),turn Mode clockwise from Mode 6 to Mode 0~4.*

   If use Mode 5 EDID(1080p),turn Mode anticlockwise from Mode 5 to Mode 0~4

## Rear Panel — Transmitting Unit   AV-GM02R3-S1-TX
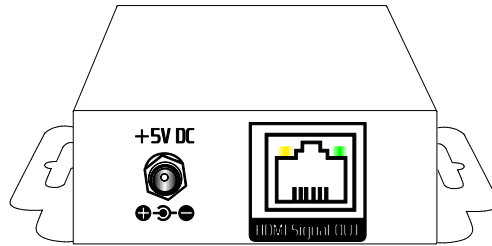
+5V DC: Connect to 5V DC power supply.

RJ45-OUT: Plug in a CAT-5/5e/6 LAN cable that needs to be linked to the RJ-45 connector of the receiving unit AV-GM02R3-S1-RX.

Hardware Installation

1. Connect your HDMI/DVI source (such as a Blu-ray Disc player) to the transmitting unit AV-GM02R3-S1-TX.

2. Plug-in the receiving unit AV-GM02R3-S1-RX to your HDMI display (such as a HDTV or a projector).

3. Connect your CAT-5/5e/6 LAN cable between the transmitting and receiving units.

4. Make sure your CAT-5/5e/6 LAN cable is tightly connected and not loose.

5. Plug in 5V DC power cord to the power jack of the transmitting unit AV-GM02R3-S1-TX.
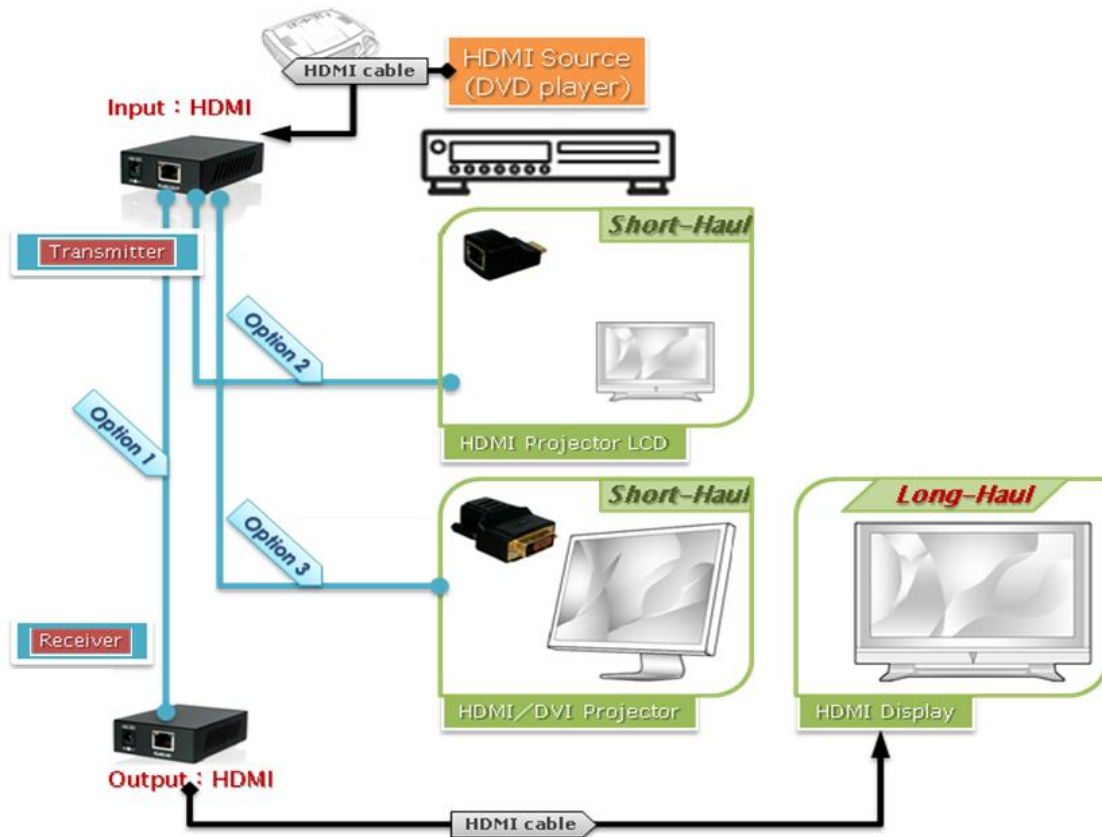
EDID Learning

1. Turn on AV-GM02R3-S1-TX.

2. Turn the Mode of AV-GM02R3-S1-TX <u>counterclockwise</u> from 0 (for surround sound) or 1 (for stereo) to 7.

3. Use a HDMI cable to connect AV-GM02R3-S1-TX & the display (better not connect to video source). The LED on the RJ-45 of AV-GM02R3-S1-TX will dim and light again, which indicates the EDID learning process is finished.

4. Turn the Mode of AV-GM02R3-S1-TX <u>clockwise</u> from 7 to 0 (for surround sound) or 1 (for stereo). *The most important thing is don't let the rotary arrow pass through 6 which will erase the EDID just learned and restore to default EDID.*

5. Connect AV-GM02R3-S1-TX and the video source through a HDMI cable and enjoy the experience.

1. If the DVI or HDMI device requires the EDID information, please use EDID Reader/Writer to retrieve and provide DVI/HDMI EDID information.

2. All HDMI over CAT5 transmission distances are measured using Belden 1583A CAT5e 125MHz LAN cable and ASTRODESIGN Video Signal Generator VG-859C.

3. The transmission length is largely affected by the type of LAN cables, the type of HDMI sources, and the type of HDMI display. The testing result shows solid LAN cables (usually in bulk cable 300m or 1000ft form) can transmit a lot longer signals than stranded LAN cables (usually in patch cord form). Shielded STP cables are better suit than unshielded UTP cables. A solid UTP CAT5e cable shows longer transmission length than stranded STP CAT6 cable. For long extension users, solid LAN cables are your only choice.

4. EIA/TIA-568-B termination (T568B) for LAN cables is recommended for better performance.

5. To reduce the interference among the unshielded twisted pairs of wires in LAN cable, you can use shielded LAN cables to improve EMI problems, which is worsen in long transmission.

6. Because the quality of the LAN cables has the major effects in how long transmission distance will be made and how good is the received display, the actual transmission length is subject to your LAN cables. For resolution greater than 1080i or 1280x1024, a CAT6 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.

Performance Guide for HDMI over LAN Cable Transmission

Performance rating		Type of LAN cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	★★★	★★★★	★★★★★
	Shielded (STP)	★★★	★★★	★★★★
Stranded	Unshielded (UTP)	★	★★	★★
	Shielded (STP)	★	★	★★

Termination	Please use **EIA/TIA-568-B** termination (**T568B**) at any time

The SELLER warrants the **AV-GM02R3-S1 HDMI over Single CAT5 Direct Plug-in Extender** to be 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-GM02R3-S1 features and specifications is subject to change without further notice.

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