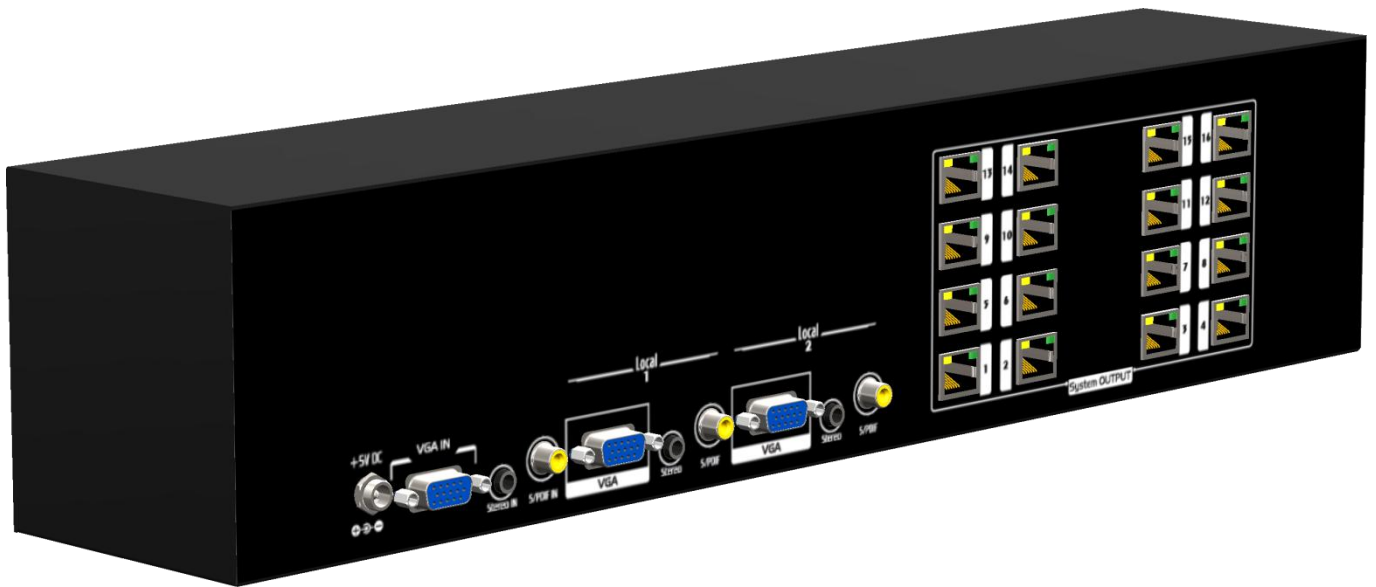




# 1x16 VGA & Audio over CAT5 Splitter



P/N: AV-GM06U3-S1



## Safety and Notice

The **AV-GM06U3-S1 1x16 VGA & Audio over CAT5 Splitter** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **AV-GM06U3-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-GM06U3-S1 1x16 VGA & Audio over CAT5 Splitter** with only one cost effective Cat-5/5e/6 cable lets you extend VGA or component video (WUXGA) and stereo/analog audio signals to cover the distance up to 330m to sixteen VGA & Audio over CAT5 receivers (BPVGARA or BPVGARAD). Built with two VGA and digital/analog audio loop-outs, local AV receivers can provide extra video and audio fan-outs through typical VGA, S/PDIF, and analog audio cables. The high bandwidth VGA can be transmitted up to 65 meters on the local ports.

## FEATURES

- Supports up to WUXGA (1920x1200@60) or UXGA (1600x1200@60) to 330m\*
- Supports 720p component video signal to 330m\*
- Supports analog and digital stereo audio
- Supports component video transmission with VGA-component breakout cables
- 2RU rack mounting case and latch-locking power jack for better fixedness and easy installation



\*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.

\*Although the BPVGARA can transmit high resolution video signals to 330m, but for better visual experience especially if the signal is still picture, it is recommended to choose use the BPVGARA under 100m for resolution higher than 1280x1024. For longer transmission, please use BPVGARAD instead as the receiving unit.

\*For component video over CAT5 transmission, you need to prepare VGA-to-component breakout cables which are not included in the package contents.

## PACKAGE CONTENTS

- 1x AV-GM06U3-S1
- 1x 2RU rack-mounting ear set

- 1x 5V power supply unit
- 1x C7 power cord
- 1x User manual

## SPECIFICATIONS

Model Name		AV-GM06U3-S1
<b>Technical</b>		
Role of usage	1x6 splitter / transmitter [TX]	
Supported video format	VGA / component	
Video bandwidth	350MHz	
Video support	1080p60, WUXGA (1920x1200@60), UXGA (1600x1200@60) or higher	
Audio support	Stereo audio	
Transmission	300m CAT5e at WUXGA	
Input video signal	1.2 Volts [peak-to-peak]	
Equalization	Continuous analog control	
ESD protection	[1] Human body — ±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 VGA + 1x 3.5mm + 1x RCA	
Output	2x VGA + 2x 3.5mm + 2x RCA + 16x RJ45	
VGA connector	HD-15 (15-pin D-sub female)	
RJ45 connector	WE/SS 8P8C with 2 LED indicators	
3.5mm connector	Earphone jack for analog stereo audio	
RCA connector	Yellow RCA for S / PDIF digital stereo audio	
<b>Mechanical</b>		
Housing	Metal enclosure	
Dimensions [L x W x H]	Model	99 x 431 x 88mm
	Package	510 x 230 x 70mm [1'8" x 9.1" x 2.8"]
		510 x 410 x 252mm [1'8" x 1'4" x 10"]
Weight	Model	1.5kg

	Package	2.6kg
Fixedness		2 RU rack-mount case with screws & latch-locking power jack
Power supply		5V 4A DC
Power consumption		20 Watts [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

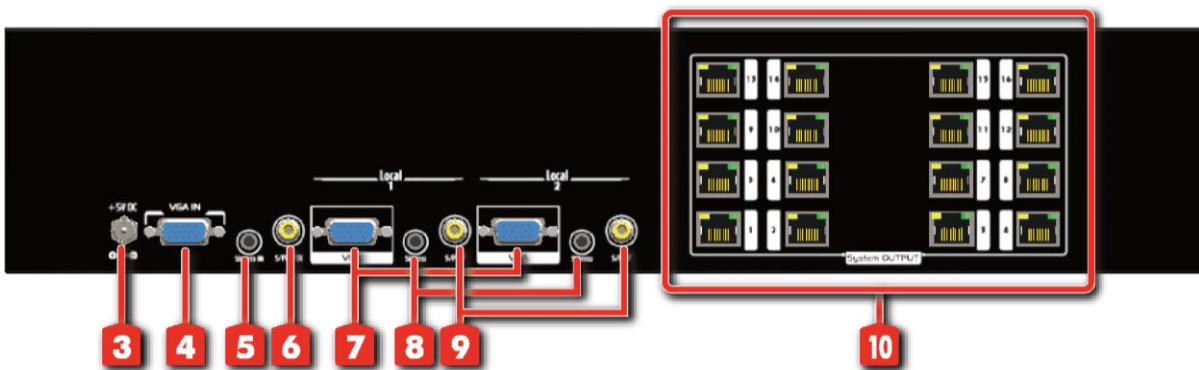


**1. Audio Format Switch:** A push-in button for input audio selection.

( — analog stereo audio;  — S/PDIF digital stereo audio)

**2. Power:** Power on/off indicator.

## Rear Panel



**3. +5V DC:** Latch-locking power jack to connect to a 5V DC power supply unit with a C7 power cord.

**4. VGA INPUT:** Connect to a VGA source or a component video source (via a VGA-component breakout cable)

**5. Stereo IN:** Connect to an analog stereo audio source.

**6. S/PDIF IN:** Connect to a digital stereo audio source.

**7. VGA OUT:** Local video output to a VGA display or component video display (via a VGA-component breakout cable).

**8. Stereo OUT:** Local audio output to analog stereo audio speakers.

**9. S/PDIF OUT:** Local audio output to digital stereo audio speakers.

**10. VGA SIGNAL OUT:** Connect a Cat-5/5e/6 cable to each RJ45 port and link it to the receiving units.

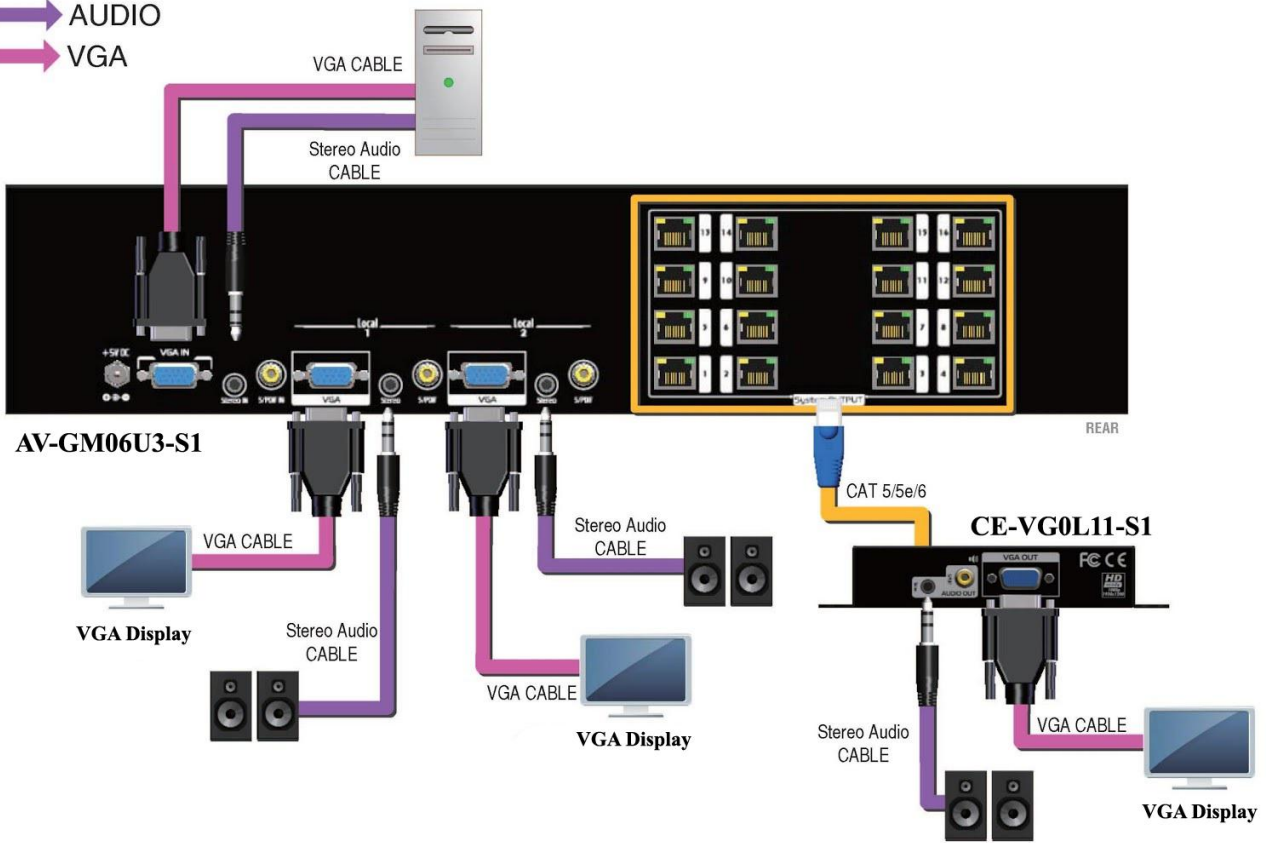
# HARDWARE INSTALLATION

## Broadcasts PC A/V signals to 16 remote displays and two local receivers

1. Switch off all devices, including monitors.
2. Connect the video and audio sources to the AV-GM06U3-S1. For component video source, please find a VGA-component breakout cable to plug into the **VGA IN** port.
3. Connect the video displays and audio speakers to the receiving units BPVGARA or BPVGARAD. For component video display, please find a VGA-component breakout cable and plug into the **VGA OUT** port on the receiving units BPVGARA or BPVGARAD.
4. Connect a Cat-5/5e/6 cable to each **VGA SIGNAL OUT** RJ45 port on the AV-GM06U3-S1 and the **VGA SIGNAL IN** RJ45 port on each receiving unit BPVGARA or BPVGARAD. Make sure these Cat-5/5e/6 cables are tightly connected and not loose.
5. Plug in 5V DC power supply units and power on all devices.
6. If you see the monitor is displaying blurred video or even worse, not displaying at all, please adjust the EQ and Gain rotary controls on the receiving units BPVGARA or BPVGARAD to improve the cable skew. GAIN rotary control is to adjust the gain to an appropriate level for a range of input signal levels (brightness), and EQ rotary control is to equalize the wave form of the receiving video signal (sharpness). It is suggested to begin with adjusting the rotary control of EQ to get the input video displayed first, and then the rotary control of GAIN according to the video you see on the screen.
7. Adjust RGB delay skew on the receiving unit BPVGARAD to get even better picture quality for long distance transmission.

# CONNECTION DIAGRAM

- CAT5/5e/6
- AUDIO
- VGA





# NOTICE

1. All the transmission distances are measured using Belden CAT-5e 125MHz Solid cable and ASTRODESIGN Video Signal Generator VG-859C. The transmission distance is defined as the distance between the AV-GM06U3-S1 and the remote VGA display.
2. The transmission length is largely affected by the type of Cat-5/5e/6 cables, the type of VGA sources, and the type of VGA display. The testing result shows solid UTP cables (usually in the form of 300m [1,000ft] 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.
3. EIA/TIA-568-B termination (T568B) for Cat-5/5e/6 cables is recommended for better performance.
4. To reduce the interference among the unshielded twisted pairs of wires in Cat-5/5e/6 cable, one can use shielded STP cables to improve EMI problems, which is worsen in long transmission.
5. 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.
6. The RS-232 channel for all the connected receivers actually share the same path, and therefore the system designers must be aware of that the feedback after each serial command sent by the source must only happen once on one remote device or no feedback at all to avoid interfaces from different receivers!

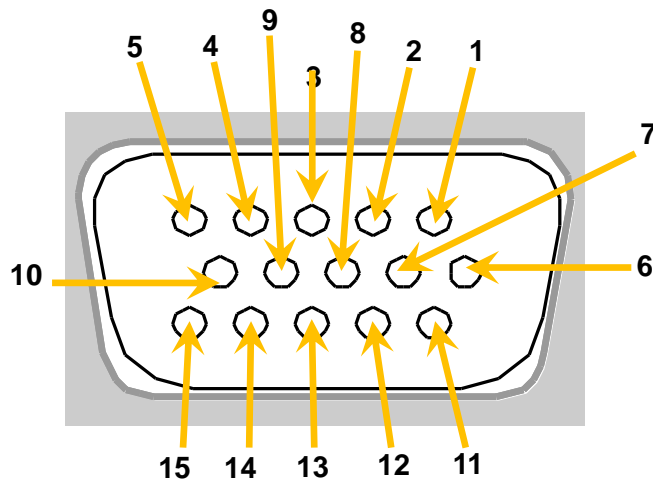


## Performance Guide for HDMI over Category Cable Transmission

Performance rating		Type of category 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		

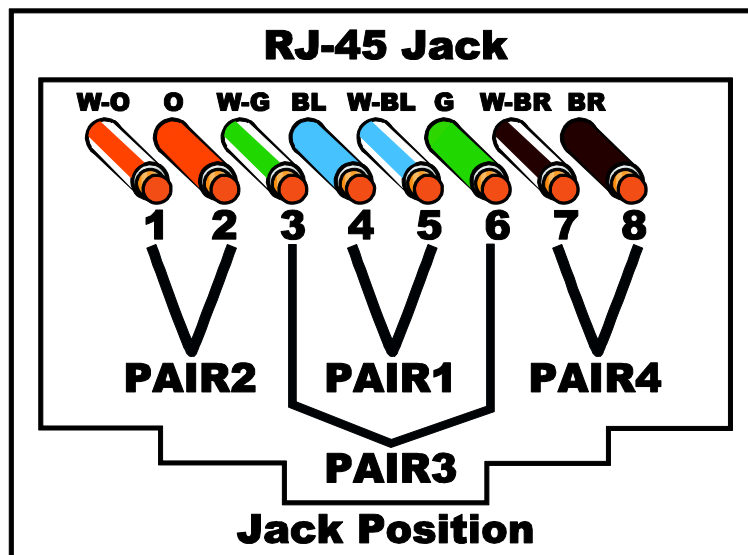
# PIN DEFINITION

## VGA / Component



Pin 1 » Pr / Red	Pin 6 » Ground	Pin 11 » Ground
Pin 2 » Y / Green / Composite	Pin 7 » Ground	Pin 12 » Reserved
Pin 3 » Pb / Blue	Pin 8 » Ground	Pin 13 » Horizontal sync
Pin 4 » Ground	Pin 9 » +5V DC	Pin 14 » Vertical sync
Pin 5 » Ground	Pin 10 » Ground	Pin 15 » Reserved

## RJ-45 / Category cable



Pair of Cat-5/5e/6 Cable	Associated Definition
<b>GREEN</b>	Audio
<b>BLUE</b>	RED channel of VGA
<b>ORANGE</b>	GREEN channel of VGA

**BROWN**

**BLUE channel of VGA**

**Support**

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

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