



VGA/component, Audio & RS-232 over CAT5 Extender with IR Pass-through





Safety and Notice

The AV-GM03S3-S1 VGA/component, Audio & RS-232 over CAT5 Extender with IR Pass-through has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the AV-GM03S3-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

With only one cost effective Cat-5/5e/6 cable, the AV-GM03S3-S1 lets you extend VGA (WUXGA – 1920x1200@60) or 720p component video, bi-directional IR signals and RS-232 serial commands at the same time to cover the distance up to 300m (1,000ft). The AV-GM03S3-S1 comes in a set of a transmitter and a receiver. The transmitter AV-GM03S3-S1[Tx] is installed near the signal source and has, and the receiver AV-GM03S3-S1[Rx] is placed near the desired display. With built-in EQ and GAIN control, the transmission path can be adjusted to adapt the cable quality and video bandwidth. In order to extend the control path, AV-GM03S3-S1 also built RS-232 half-duplex long range extender along with VGA/component video signals.

FEATURES

- Supports up to WUXGA [1920x1200@60] or UXGA [1600x1200@60] VGA signal to 300m (1,000ft)
- Supports 720p component video signal to 300m (1,000ft)
- Supports RS-232 half-duplex & bi-directional IR pass-through
- Supports analog stereo audio and digital S/PDIF stereo audio
- Video and audio local out on transmitting unit for easy monitoring
- Adjustable equalization and gain control on receiving unit for signal tuning
- Wall mounting case & interlocked power jack for better fixedness

PACKAGE CONTENTS

- 1x AV-GM03S3-S1
- 2x 5V power supply unit
- 1~3x VGA-component breakout cable [optional accessory]
- 1x User Manual

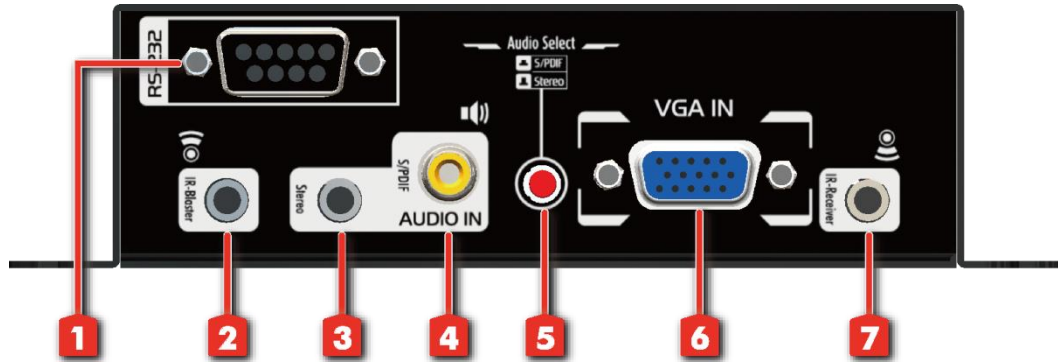
SPECIFICATIONS

Model Name		AV-GM03S3-S1	
Role of usage		Transmitter [TX]	Receiver [RX]
Video bandwidth		350MHz	
Video support		VESA	
Video Transmission		WUXGA [1920x1200] / 720p — 300m (1,000ft) [CAT5e]	
Audio support		Stereo	
RS-232 signal type		Half-duplex	
Input video signal		1.2 Volts [peak-to-peak]	
Equalization		Continuous analog control	
RGB delay control		No	
Loop-out		1 VGA local-out + 1 audio local-out at TX	
ESD protection		Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]	
Input		1x VGA 1x RS-232 2x 3.5mm 1x RCA 1x RS-232	1x 3.5mm 1xRJ-45
Output		1x RJ-45 1x VGA 2x 3.5mm 1x RCA	1x VGA 1x RS-232 1x RCA 1x 3.5mm
VGA connector		HD-15 [15-pin D-sub female]	
RJ-45 connector		WE/SS 8P8C with 2 LED indicators	
RS-232 connector		DE-9 [9-pin D-sub female]	
RCA connector		S/PDIF digital audio	
3.5mm connector		Earphone jack for analog stereo audio or IR cable	
Mechanical			
Housing		Metal enclosure	
Dimensions [L x W x H]	Model	[TX/RX] – 123 x 95 x 25mm [4.8"x3.7"x1"]	
	Package	330 x 200 x 95mm [1'1"x7.9"x3.7"]	
	Carton	495 x 440 x 380mm [1'7.5"x1'5.3"x1'3"]	
Weight	Model	[TX]- 370g [12oz] / [RX]- 380g [13oz]	
	Package	1240g [2.7 lbs]	
Fixedness		Wall-mounting case with screws	
Power supply		Inter-locked 5V 2A DC	
Power consumption		6 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

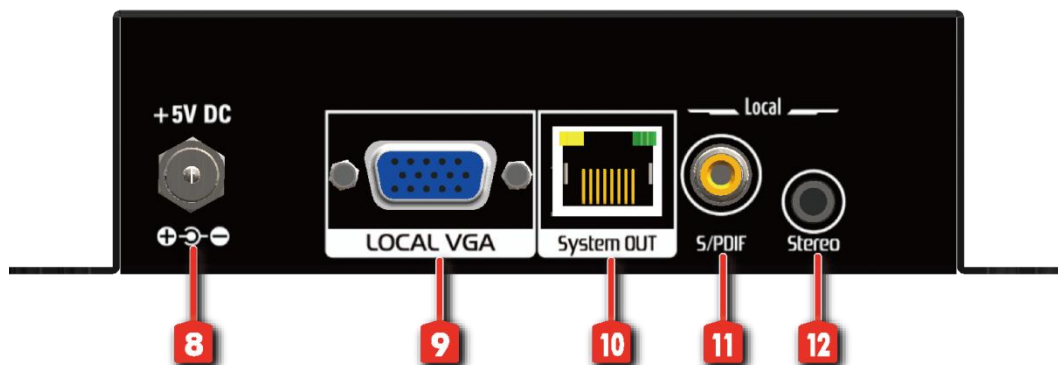
Transmitting unit ► AV-GM03S3-S1-TX

Front Panel



1. **RS-232:** connect to a RS-232 signal source or receiver
2. **IR-Blaster:** connect to IR blaster for IR pass-through from RX to TX
3. **Stereo IN:** connect to analog audio source
4. **S/PDIF IN:** connect to digital audio source
5. **Push-in button:** select between S/PDIF and analog stereo audio [button down-S/PDIF, button up-Stereo]
6. **VGA IN:** connect to a VGA input source or a component video source via a VGA-component break cable
7. **IR-Receiver:** connect to IR receiver for IR pass-through from TX to RX

Rear Panel



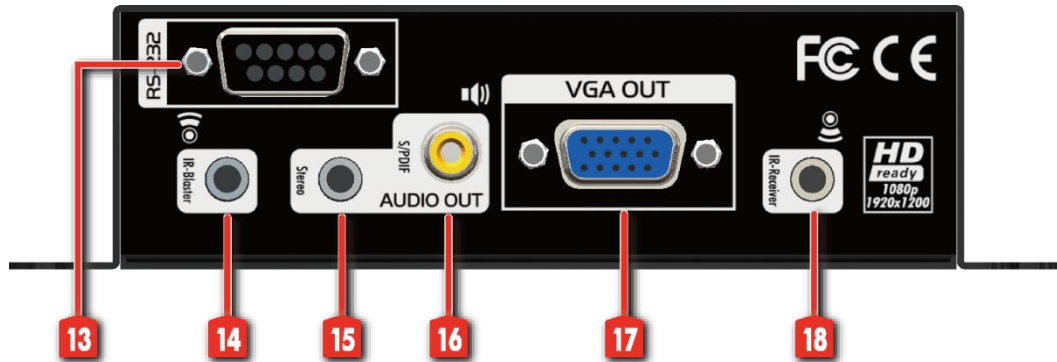
8. **+5V DC:** inter-locked power jack to connect to 5V DC power supply unit
9. **Local VGA:** VGA loop-out to a local VGA display or component video display via a

VGA-component breakout cable

- 10. **System OUT:** Plug in a Cat-5/5e/6 cable that needs to be linked to the RJ-45 connector of the receiving unit AV-GM03S3-S1[Rx]
- 11. **Local S/PDIF:** Digital stereo audio loop-out
- 12. **Local Stereo:** Analog stereo audio loop-out

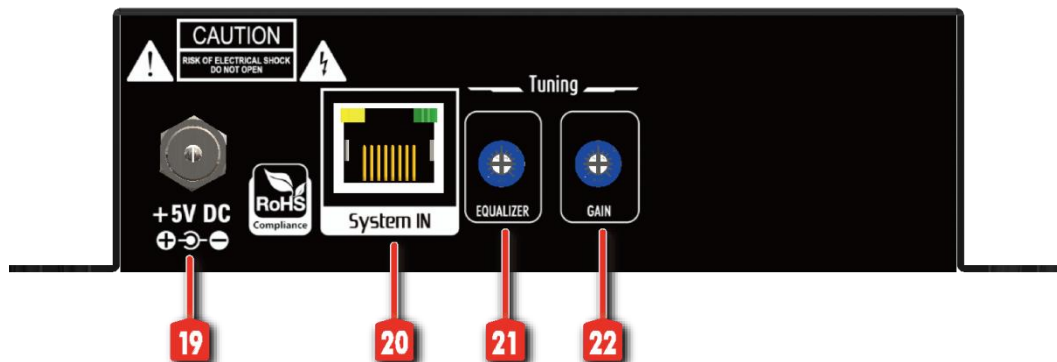
Receiving unit ► AV-GM03S3-S1-RX

Front Panel



- 13. **RS-232:** Connect to a RS-232 device
- 14. **IR Receiver:** Connect to the IR receiver
- 15. **Audio OUT:** Connect to analog audio output
- 16. **S/PDIF OUT:** Connect to digital audio output
- 17. **VGA OUT:** VGA output to a VGA display or component video display via a VGA-component breakout cable
- 18. **IR Blaster:** Connect to the IR blaster

Rear Panel



- 19. **+5V DC power jack:** connect to 5V DC power supply
- 20. **System IN:** Plug in a CAT-5/5e/6 cable that needs to be linked to the RJ-45 connector of the transmitting unit AV-GM03S3-S1[Tx]
- 21. **EQUALIZER:** Rotary control for equalization of R, G, B, respectively

22. **GAIN:** Rotary control for gain control of R, G, B, respectively respective R/G/B color channel that is chosen by the RGB selector

Bottom Panel

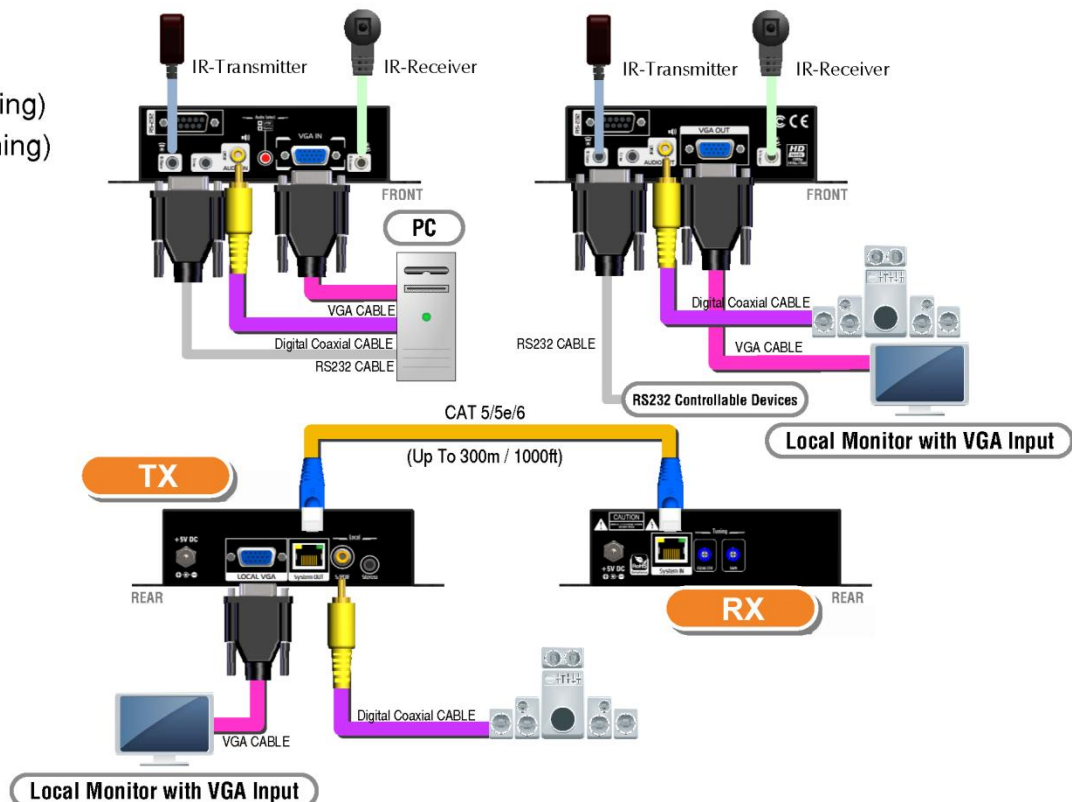
DIP Switch Position				Description
Pin#1	Pin#2	Pin#3	Pin#4	
ON [↑]	OFF [↓]	ON [↑]	OFF [↓]	TX&RX Extender Mode – TxD ¹ of AV-GM03S3-S1[TX] is connected to TxD of AV-GM03S3-S1[RX] RxD ² of AV-GM03S3-S1[TX] is connected to RxD of AV-GM03S3-S1[RX]
OFF [↓]	ON [↑]	OFF [↓]	ON [↑]	Master to Slave Mode – TxD of AV-GM03S3-S1[TX] is connected to RxD of AV-GM03S3-S1[RX] RxD of AV-GM03S3-S1[TX] is connected to TxD of AV-GM03S3-S1[RX]



1. TxD: The 3rd pin of RS-232, which is in charge of sending data
2. RxD: The 2nd pin of RS-232, which is in charge of receiving data

CONNECTION DIAGRAM

- CAT5/5e/6
- VGA
- AUDIO
- RS-232
- IR (outgoing)
- IR (incoming)



IR PASS-THROUGH

IR Extenders

IR Blaster



IR Receiver



IR Sockets

AV-GM03S3-S1[Tx]

IR Blaster: Plug in an IR blaster here to emit all IR command signals received from the IR receiver on AV-GM03S3-S1[Rx] to control the associated devices with built-in IR sensor

IR Receiver: Plug in an IR receiver here to receive all IR command signals from the IR remote controls of the associated devices

AV-GM03S3-S1[Rx]

IR Blaster: Plug in an IR blaster here to emit all IR command signals received from the IR receiver on AV-GM03S3-S1[Tx] to control the associated devices with built-in IR sensor

IR Receiver: Plug in an IR receiver here to receive all IR command signals from the IR remote control of the IR source device.

Definition of IR Earphone Jack

IR Blaster



IR Receiver





You can buy any IR extension cables in the market that are compatible to the definition of the IR sockets for the matrix if necessary for replacement use. However, IR cables longer than 2m (6-ft) may not work.

SUPPORTED IR DATA FORMAT

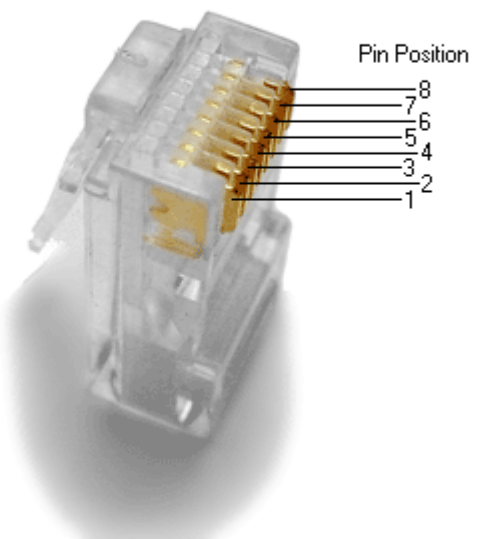
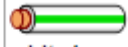



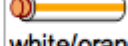
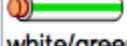
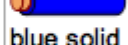
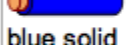
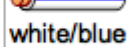

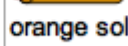
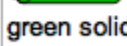


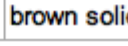
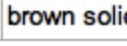
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RC5	<input checked="" type="checkbox"/>	
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GRUNDIG CODE	<input checked="" type="checkbox"/>	
SONY 12 BIT CODE	<input checked="" type="checkbox"/>	
SONY 15 BIT CODE	<input checked="" type="checkbox"/>	
SONY 20 BIT CODE	<input checked="" type="checkbox"/>	
RCA CODE		<input checked="" type="checkbox"/>
RCM CODE		<input checked="" type="checkbox"/>
MATSUSHITA CODE		<input checked="" type="checkbox"/>
mitsubishi CODE	<input checked="" type="checkbox"/>	
ZENITH CODE	<input checked="" type="checkbox"/>	
JVC CODE	<input checked="" type="checkbox"/>	
M50560-001P	<input checked="" type="checkbox"/>	
MN6125H	<input checked="" type="checkbox"/>	
MN6125L	<input checked="" type="checkbox"/>	
MN6014_C5D7	<input checked="" type="checkbox"/>	
MN6014-C6D6	<input checked="" type="checkbox"/>	
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LC7464(AHEA)	<input checked="" type="checkbox"/>	
GEMINI_CM	<input checked="" type="checkbox"/>	

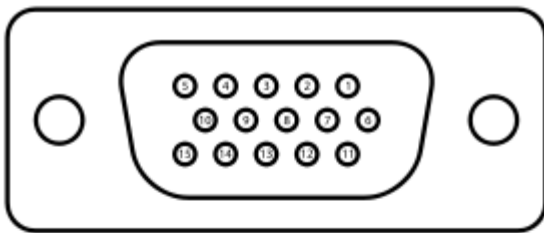
HARDWARE INSTALLATION

1. Connect your VGA source, audio source, infrared and RS-232 devices to the transmitting unit AV-GM03S3-S1[Tx]. If you want to connect to a component video source, please find a VGA-component breakout cable and link it between the video source and the transmitting unit of AV-GM03S3-S1.
2. Connect your VGA display, audio speaker, infrared and RS-232 devices to the receiving unit AV-GM03S3-S1[Rx]. If you want to connect to a component video display, please find a VGA-component breakout cable and link it between the video display and the receiving unit of AV-GM03S3-S1.
3. Connect a Cat-5/5e/6 cable between the transmitting and receiving units.
4. Make sure this Cat-5/5e/6 cable is tightly connected and not loose.
5. Plug in 5V DC power supply unit to the power jack of the receiving unit AV-GM03S3-S1[Rx].
6. Plug in 5V DC power supply unit to the power jack of the transmitting unit AV-GM03S3-S1[Tx].
7. If you see the monitor is displaying blurred video or even worse, not displaying at all, please adjust the EQ and Gain rotary controls 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.

PIN DEFINITION

T568A and T568B Wiring

Pin	T568A Pair	T568B Pair	Wire	T568A Color	T568B Color	Pins on plug face (socket is reversed) 
1	3	2	tip	 white/green stripe	 white/orange stripe	
2	3	2	ring	 green solid	 orange solid	
3	2	3	tip	 white/orange stripe	 white/green stripe	
4	1	1	ring	 blue solid	 blue solid	
5	1	1	tip	 white/blue stripe	 white/blue stripe	
6	2	3	ring	 orange solid	 green solid	
7	4	4	tip	 white/brown stripe	 white/brown stripe	
8	4	4	ring	 brown solid	 brown solid	



A female DE15 socket (videocard side).

Pin 1	RED	Red video
Pin 2	GREEN	Green video
Pin 3	BLUE	Blue video
Pin 4	N/C	Not connected
Pin 5	GND	Ground (HSync)
Pin 6	RED_RTN	Red return
Pin 7	GREEN_RTN	Green return
Pin 8	BLUE_RTN	Blue return
Pin 9	SENSE	+5 V DC from gfx adapter
Pin 10	GND	Ground (VSync, DDC)
Pin 11	N/C	Monitor ID
Pin 12	SDA	PC data
Pin 13	HSync	Horizontal sync
Pin 14	VSync	Vertical sync
Pin 15	SCL	PC clock

Pair of Cat-5/5e/6 Cable	Associated Definition
Green	Audio
Blue	RED channel of VGA
Orange	GREEN channel of VGA
Brown	BLUE channel of VGA

NOTICE

1. All transmission distances are measured using Belden 1583A CAT5e 125MHz Solid UTP cable and ASTRODESIGN Video Signal Generator VG-859C. The transmission distance is defined as the distance between the video source and the VGA display.
2. The transmission length is largely affected by the type of CAT5/6 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 or 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 CAT5e cable shows longer transmission range than stranded STP CAT6 cable. For long extension users, solid UTP/STP cables are the only viable choice.
3. To reduce the interference among the unshielded twisted pairs of wires in UTP cable, you can use shielded STP cables to improve EMI problems, which is worsen in long transmission.
4. 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 CAT5/6 cables. For desired resolutions greater than 1080i or 1280x1024, a Cat-6 cable is recommended.



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		

WARRANTY

The SELLER warrants the **AV-GM03S3-S1 VGA/component, Audio & RS-232 over CAT5 Extender with IR Pass-through** 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 are limited to a 30 day warranty and cable 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-GM03S3-S1 features and specifications is subject to change without further notice.

Support

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