5x64 HDMI Splitter in Modularized HDMI/Cat.X Out

P/N: AV-GM06M3-S1

Safety and Notice

The **AV-GM06M3-S1** 5x64 HDMI Splitter in Modularized HDMI/Cat.X 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-GM06M3-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-GM06M3-S1** 5x64 HDMI Splitter in Modularized HDMI/Cat.X Out is the most advanced HDMI splitter with flexible output port expansion capability in the market. The number of HDMI outputs of AV-GM06M3-S1 can be up to 64 in typical HDMI connectors or CAT5 connectors. AV-GM06M3-S1 offers the first HDMI distribution system which can be easily expanded to have more outputs with plug daughter boards to increase the size of high definition HDMI distribution network. Each daughter board offers 8 HDMI signal fan outs with either HDMI or CAT-5 connectors with one extra HDMI connector for another local input. For each CAT5 output port, AV-GM06M3-S1 can transmit Full HD 1080p AV signals up to 40 meters/130 feet distance away through single solid CAT-5/6/7 cables. Moreover AV-GM06M3-S1 is cascadable and allows users to extend Full HD A/V to HDMI compliant displays almost anywhere. For convenience, AV-GM06M3-S1 is also equipped with a local 5x1 HDMI switch for input selection. With the built in equalization for HDMI inputs, the input HDMI cable can actually be extended up to 20 meters/66 feet long under Full HD, and make the overall transmission distance superior than regular HDMI splitters or matrix switches in the market.

FEATURES

- State-of-the-art Silicon Image (founder of HDMI) chipset embedded for utmost compatibility and reliability
- Support HDMI Deep Color & 3D
- HDCP compliant
- PCIe card slot compatible design
- Each HDMI PCIe card provides HDMI outputs and 1 local input
- HDMI PCIe card can be built with either HDMI out or Cat.X out
- Regenerates the HDMI signal
- HDMI local input for adding another source to the eight outputs
- Supports default HDMI EDID and has the ability to learn the EDID of displays
- Extends up to 20m (66ft) of input HDMI cable
- Extends up to 60m (200ft) of output Cat.X solid UTP cable under HD (720p / 1080i)
- Extends up to 40m (130ft) of output Cat.X solid UTP cable under Full HD (1080p)
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.X cable transmission
- Allows cascading
- RS-232 control master and local sources
- 3RU rack mountable

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

Model Name		AV-GM06M3-S1
Technical		
Role of usage		5x64 Distribution Amplifier Transmitter [TX]
HDMI compliance		HDMI Deep Color & 3D
HDCP compliance		Yes
Video bandwidth		Single-link 225MHz [6.75Gbps]
Video support		480i / 480p / 720p / 1080i / 1080p60 24/30/36-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
Signal equalization		Built-in
Input TMDS signal		1.2 Volts [peak-to-peak]
Input DDC signal		5 Volts [peak-to-peak, TTL]
ESD protection		Human body X 19kV [air-gap discharge] & 12kV [contact discharge]
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]
Input		Main: 5x HDMI / Sub: up to 8x HDMI
Output		Up to 64x HDMI or RJ45 combined *
HDMI connector		Type A [19-pin female]
RS232 connector		DE-9 [9-pin D-sub female]
DIP switch		EDID setting
Rotary control switch		Firmware update
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	431 x 311 x 132mm [1'5" x 1'0" x 5.1"]
	Package	530 x 420 x 275mm [1'9" x 1'5" x 10.8"]
	Carton	530 x 420 x 275mm [1'9" x 1'5" x 10.8"]
Weight	Model	4394g [9.7 lbs]
	Package	5400g [11.9 lbs]
Fixedness		3RU rack-mounting with ears
Power supply		100-240 AC
Power consumption		100 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]

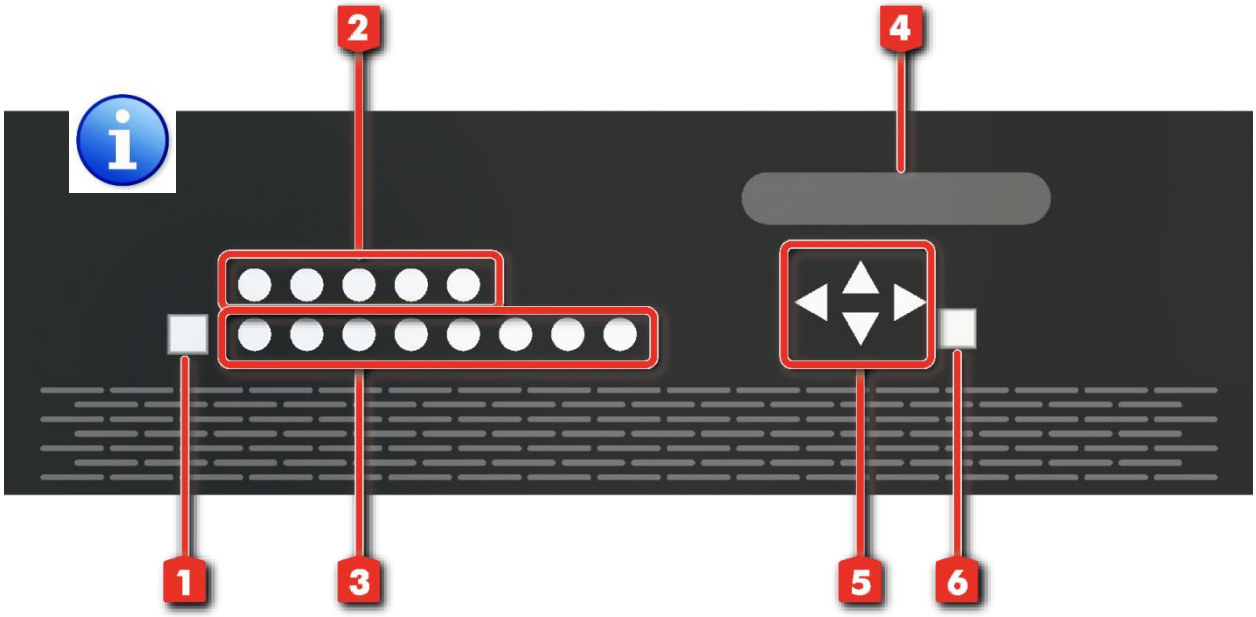
* The number of HDMI or cat-5/5e/6 is depended on the daughter boards.

PACKAGE CONTENTS

- 1x AV-GM06M3-S1
- 1x Rack-mounting ear set
- 1x UL AC C13 power cord
- 1x User Manual

PANEL DESCRIPTIONS

Front Panel



1. **Power On/Off Button:** Turn On/Off the power
2. **Main Source Select:** Use to select the HDMI source of 5x1 switcher main board
3. **Sub Input Select:** Select input mapping to the main source or local input
4. **VFD Menu:** Menu for showing selected item or status

5. **Up Button:** Use to select sub menu or increase number

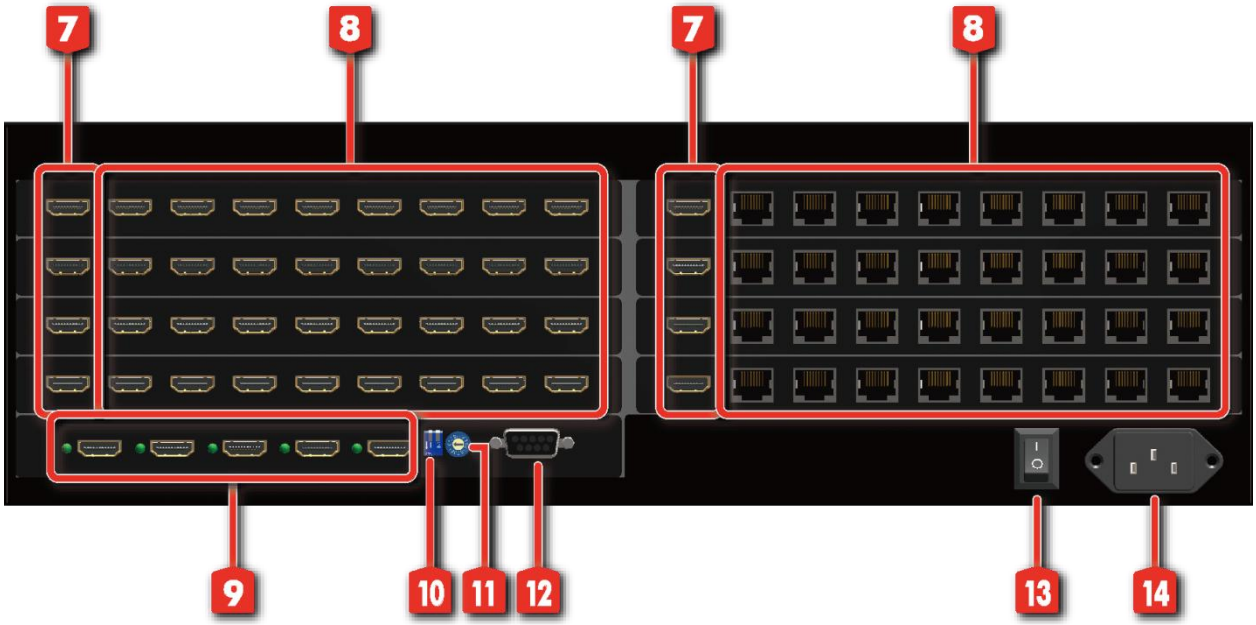
   Down Button: Use to select sub menu or decrease number

   Left Button: Use to go back the previous item

   Right Button: Used to select the sub menu show on VFD

6. **Set Button:** Use to set the change

Rear Panel



7. **HDMI Signal Local Inputs:** Local input from Group 1 to Group 8
8. **HDMI Signal OUTPUT 1-64:** Link to each HDMI display via a HDMI cable directly or Cat-5e/6/7 cable with a HDMI over CAT5e receiver CV-735 or CV-715s on each CAT5 output port
9. **HDMI INPUT 1-5:** Inputs of 5x1 switcher main board
10. **2-pin DIP Switch:** EDID & audio/video settings
11. **Rotary DIP Switch:** Firmware Update.
12. **RS232:** RS232 Control Signal to PC
13. **Power On/Off Switch:** Connect to a AC power [100-240V] supply unit here
14. **AC Power:** Connect to a AC power [100-240V] supply unit here

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 & surround sound audio output up to 7.1ch (DTS-HD Master & Dolby TrueHD)
Off [⬆]	On [⬇]	Up to 1080p	Stereo	**Safe Mode [3] —** Make the system output at 1080p video and stereo audio for basic compatibility
On [⬇]	Off [⬆]	Bypass [4]	Bypass [4]	**EDID Learning Mode [5] —** for learning EDID from the display while playing any received HDMI audio format
On [⬇]	On [⬇]	Bypass	Stereo	**EDID Learning & Stereo Mode [5] —** for learning EDID from the display while enforcing stereo output if any HDTV cannot play surround sound normally

Note for EDID (Extended Display Identification Data) learning

[1] *If the HDTV shows video but without audio, please try to set audio mode to stereo.*

[2] *Factory default setting of Mode is pin-1 OFF* [⬆] *& pin-2 OFF* [⬆] *for 1080p with surround sound.*

[3] *If you encounter any unsolved audio/video output problem during system installation, please turn any Mode to pin-1 OFF* [⬆] *& pin-2 ON* [⬇] *for safe mode to enforce the most compatible 1080p stereo output 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 distribution amplifier 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 kindsof 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

Broadcasts HDMI signals up to 64 remote displays with a local port

1. Turn off all devices, including sources and displays.
2. Connect an HDMI source (such as a Blu-ray Disc player) to the **HDMI INPUT** port.
3. Connect an HDMI receiver (such as a TV monitor) to the **HDMI OUTPUT** port.
4. Connect the CAT-5/5e/6 OUTPUT port the receivers (CV-735 or CV-715s) via Cat-5/5e/6 cables to each **HDMI Signal OUTPUT** port.
5. Connect the local HDMI source to each group.
6. Plug in AC power supply.
7. Power on the HDMI source device.
8. Power on the HDMI displays.

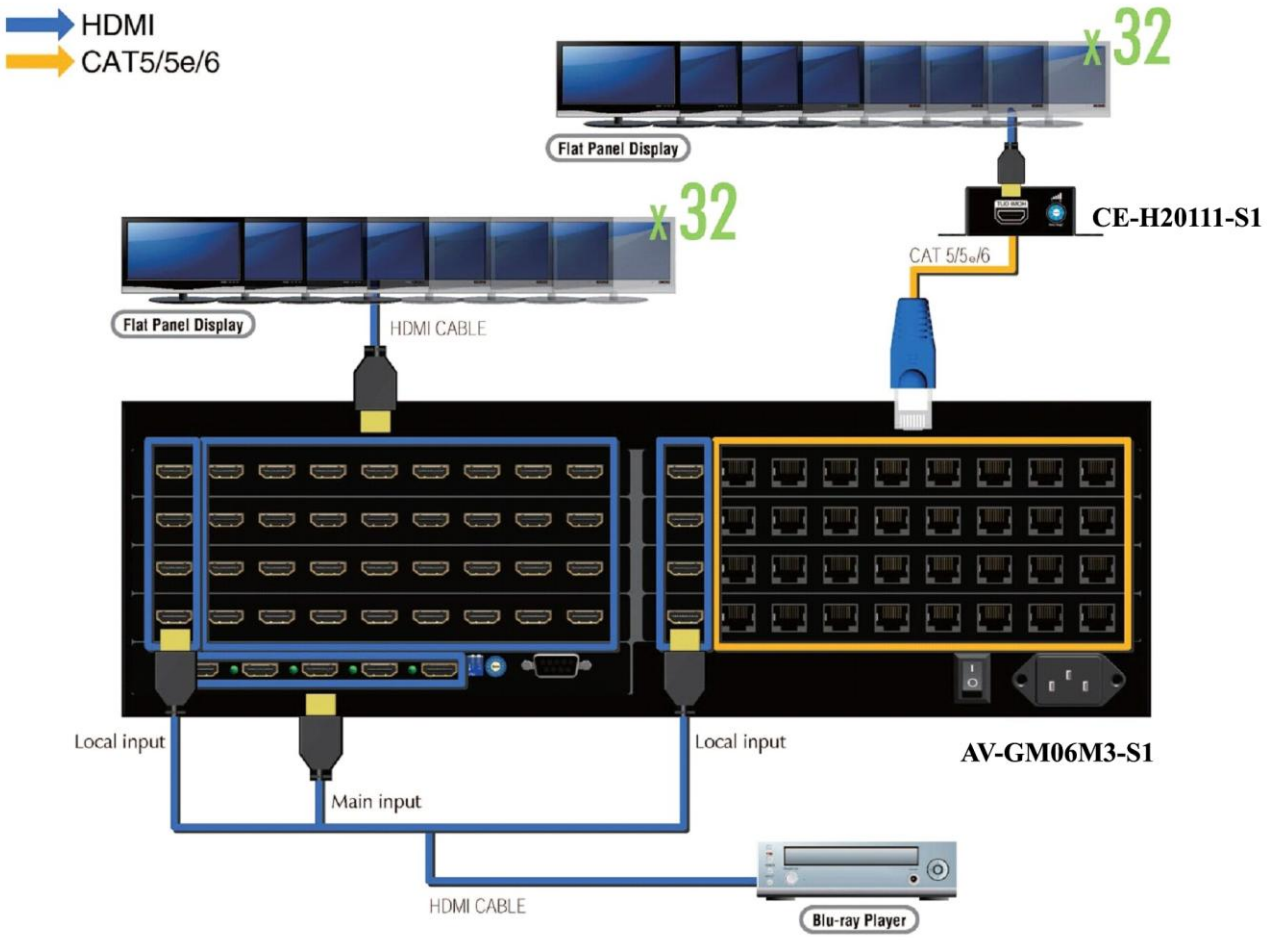
Step7 and step8 is important. Some monitors will automatically be set to Power Saving. They keep this mode even the signal appears.

EDID LEARNING

1. Please connect the display which the user want to learn EDID from, to the **Input 1 of the 5 main inputs** via HDMI cable.
2. Set the DIP switch position pin 1 at ON [⬆].
3. Please reboot the AV-GM06M3-S1 and wait for 30 seconds. Then the EDID learning sequence will be completed after the 30 seconds.
4. Resume the installation (see Hardware Installation section for more detail).

Set the DIP switch pin 1 at OFF [⬆] will erase the EDID profile learned from the display and restore the default EDID profile. So please do not dial the pin 1 back to OFF [⬆] unless you want to use default EDID profile or learn new EDID from different HDMI display.

CONNECTION DIAGRAM

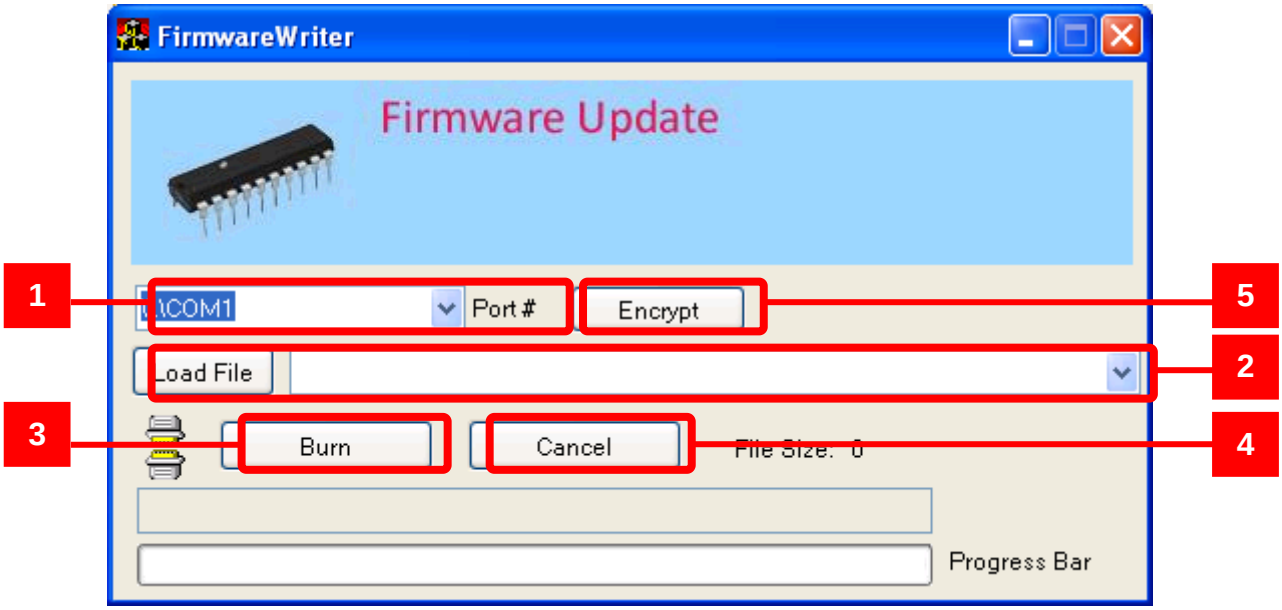


FIRMWARE UPDATE

This section is for technical support only. Do not try The definition of rotary switch is listed below. When the user is going to do firmware update, please set the rotary switch from **O** to **F** first. Once the procedure is done, please switch it back to **0**. Normally, user should keep the position of the rotary switch at **0**. The other positions are reserved for other uses in the future.

Rotary Switch Position	Description
0	Normal Operation
F	Main Board firmware Update
1~E	Reserved [Don't select]

After setting the rotary switch to F and executing the software for firmware update. Please follow the steps to do firmware update.



1. **COM Port**
   Please choose the correct port connected to PC.

2. **Load File**
   Point out the location of the file which is going to be used for firmware update.

3. **Burn**
   Press the button first to enter the standby mode. After user reboot the device, the system will start to procedure firmware update automatically. When the procedure is done, RS-232 between the device and PC will be disconnected.

4. **Cancel**
   When the user wants to terminate the updating process, please press this button is to leave.

5. **Encrypt**

OPERATION

Method A: Push-in Button

There are two ways to control AV-GM06M3-S1 via the front panel. The easiest method is to control via the left side of the front panel. The first step is to select one input as the Main input. And then decide if it follows the Main Input or adopt its Sub Input output module by output module. The advanced approach is using the button pad and VFD on the right side to have more selection and information. Please press **Up** and **Down** button to switch the Sub Menu. The sequence of the control mode is listed in the following table.

	Control Mode
Main Menu	Machine Type and Temperature
Sub Menu - 00	Global Input
Sub Menu - 01	Local Input
Sub Menu - 02	Status

By pushing **UP** button, the Sub Menu will be switched by the sequence “02 → 01 → 00 → 02”.
By pushing **Down** button, the Sub Menu will be switched by the sequence “00 → 01 → 02 → 00”.
When pushing the **Right** button, the VFD will be set on Sub Menu.

Main Menu – Machine Type and Temperature

It will show the status of AV-GM06M3-S1 and the temperature in the box.

Sub Menu – Global Input [Select one of the five inputs as the main inputs]

Use **Up** button and **Down** button to select the main input, then push **SET** button to apply the setting.
After setting, please pushing the **Left** button to return the Sub Menu.
If user doesn’t push any button in this mode, the system will go back to Main Menu automatically few minutes later.

Sub Menu – Local Input [Decide if the output module follows the Local Input]

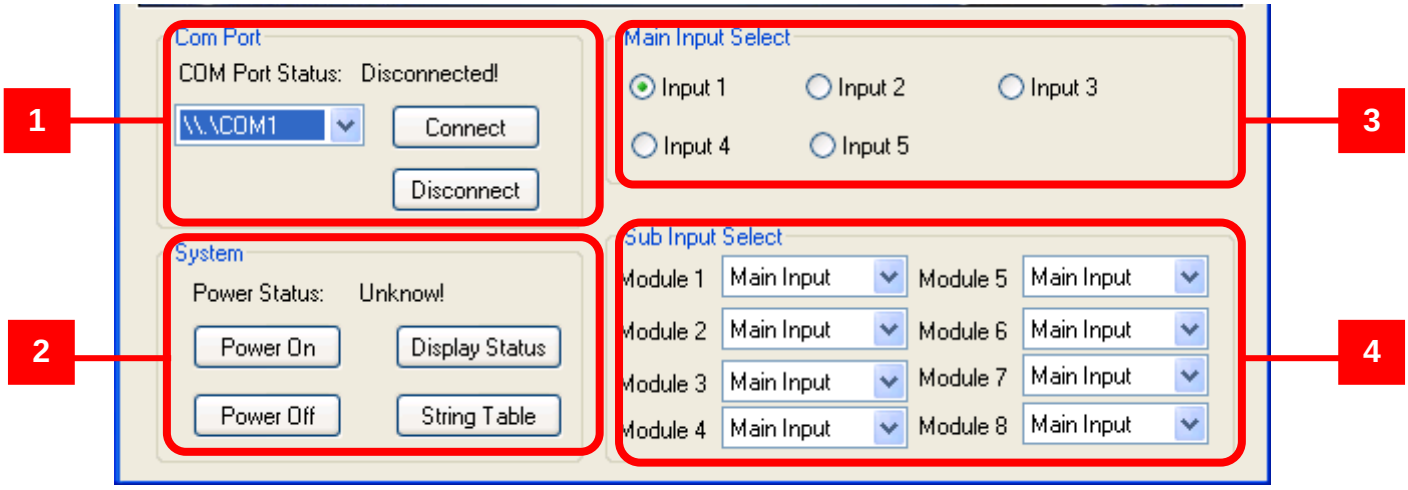
Press **Right** button to enter the setting.
Use **UP** button or **Down** button to select the number of Output Module from 1~8.
After selecting the board number, press **Right** button to select the source from Main or Sub Input.
After setting, please push **SET** button to remember the setting.
If user doesn’t push any button in this mode, the system will go back to Main Menu automatically few minutes later.

Sub Menu – Status [Show the Global/Local input for each output module]

Use **UP** button and **Down** button to switch the information.

If user doesn't push any button in this mode, the system will go back to Main Menu automatically few minutes later.

Method B: Software Control through RS-232 or USB port



1. COM Port :

The software will automatically detect which COM port is occupied in the PC. Please choose the correct COM port first and press **Connect button** to connect the device and PC. After connection, user also can press **Disconnect button** to terminate connection.

2. System Operation :

Power On

Turn on the device.

Power Off

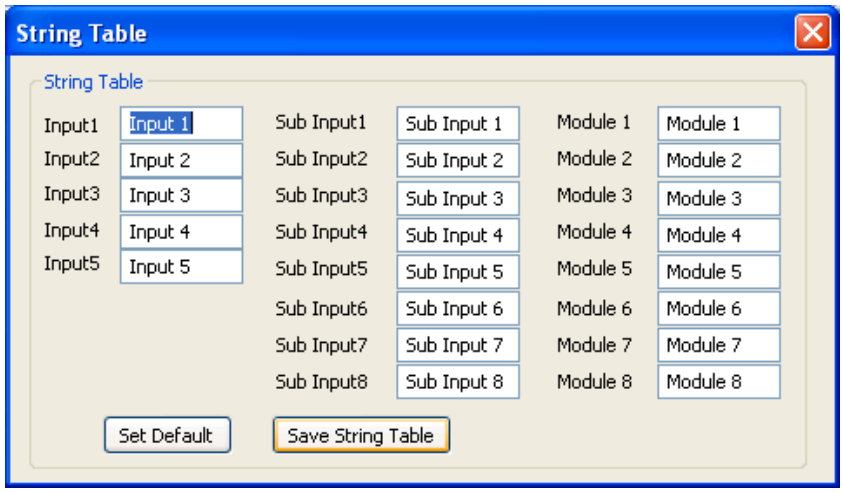
Turn off the device.

Display Status

Read the setting from the device to the software.

String Table

User can rename Input, Sub Input and Output Group to meet the on-site requirement.



3. Main Input Select :

Tick one of the five Inputs as the main source. And the system will automatically apply the Main Input setting to all of the output modules. Therefore, except the output module which is selected to its own Sub Input, the other outputs will display the main source.

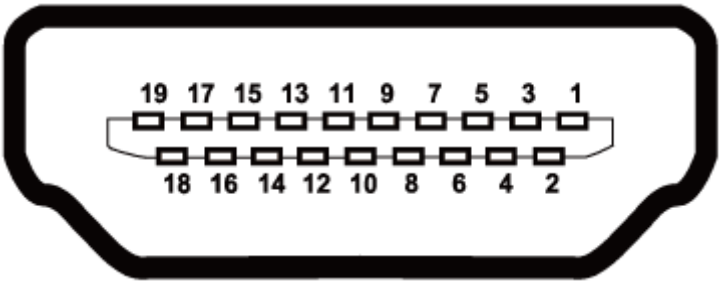
4. Sub Input Select :

There are two source can be displayed for each output module. One is from the Main Input, and another is from Sub/Local Input. By the drop-down menu, user can flexibly set up the broadcasting environment.

If there is no daughter board inserted into the output module port, the software will disable the corresponding drop-down menu to avoid any misunderstanding.

PIN DEFINITION

HDMI

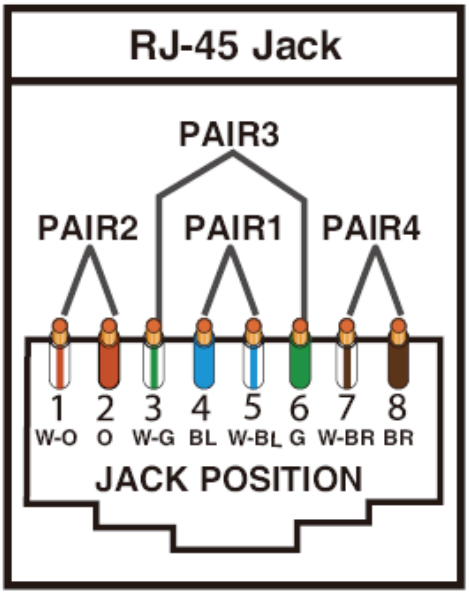


Type A (Receptacle) HDMI

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+		

CAT5 [RJ45]

Data Link TIA/EIA-568-B		
PIN	Color	Function
1	W-O	TX0-
2	O	TX0+
3	W-G	TX1-
4	BL	TX2-
5	W-BL	TX2+
6	G	TX1+
7	W-BR	TXC-
8	BR	TXC+



NOTICE

1. When adjusting the signal level on the receiver unit, please dial the rotary control switch from 7 to 0 and stop turning the rotary switch whenever the audio/video is playing normally. Inappropriate signal level setting may cause overpowering issue that would shorten the product life significantly!
2. 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.
3. 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.
4. 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.
5. EIA/TIA-568-B termination (T568B) for category cables is recommended.
6. 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.
7. 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.
8. 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 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-GM06M3-S1** 5x64 HDMI Splitter in Modularized HDMI/Cat.X 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-GM06M3-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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