

SP-5018M

2x8 HDMI Splitter over Cat.X

User Manual



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



rev: 131028
Made in Taiwan



Safety and Notice

The **SP-5018M 2x8 HDMI Splitter over Cat.X** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **SP-5018M** 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 **SP-5018M 2x8 HDMI Splitter over Cat.X** provides the most flexible solution by which the high definition video and high quality audio can be transmitted to different locations over a long distance. The devices are cascadable, allowing you to extend HDMI compliant displays almost anywhere. Installed with a 2x1 HDMI compliant switch, one of the input HDMI sources can be duplicated and distributed to up to 8 HDMI enable displays through cost effective Cat-5/5e cables and RJ45 to HDMI mini-extenders (CV-715s). With the built in equalization, the input HDMI cable can 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 / DVI 1.0 compliant
- HDCP 1.1 compliant
- Regenerates the HDMI signal
- Acts as a 2x1 HDMI switch plus a 1x8 HDMI over Cat.X splitter
- 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-5/5e/6 UTP cable under HD (720p / 1080i)
- Extends up to 40m (130ft) of output Cat-5/5e/6 UTP cable under Full HD (1080p)
- 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



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 SP-5018M
- 1x Rack-mounting ear set
- 1x User Manual
- 1x IR Remote control
- 1x DC 5V 4A in-line with C7 power cord

SPECIFICATIONS

Model Name	SP-5018M	CV-735	CV-715s
Technical			
Role of usage	2x8 Distribution Amplifier Transmitter [TX]	Receiver [long range RX]	Receiver [short range RX]
HDMI compliance	Support 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	None	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	2x HDMI	1x RJ-45	1x RJ-45
Output	8x 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 SP-5018P]	4-pin for EDID learning and audio setting modes	None	None
Rotary control switch	None	8-Signal level equalization	None
Mechanical			
Housing	Metal enclosure	Metal enclosure	Plastic molding
Dimensions [L x W x H]	Model	438 x 158 x 44mm [1'5" x 6.2" x 1.8"]	93 x 90 x 25mm [3.7" x 3.5" x 1"]
	Package	230 x 545 x 110mm [9'1" x 1'10" x 4.3"]	175 x 270 x 80mm [6.9" x 10.6" x 3.2"]
	Carton	580 x 570 x 260mm [1'11" x 1'11" x 10.2"]	450 x 370 x 300mm [1'6" x 1'3" x 11.8"]
Weight	Model	1400g [3.1 lbs]	175g [6.2oz]
	Package	2200g [4.9lbs]	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]		

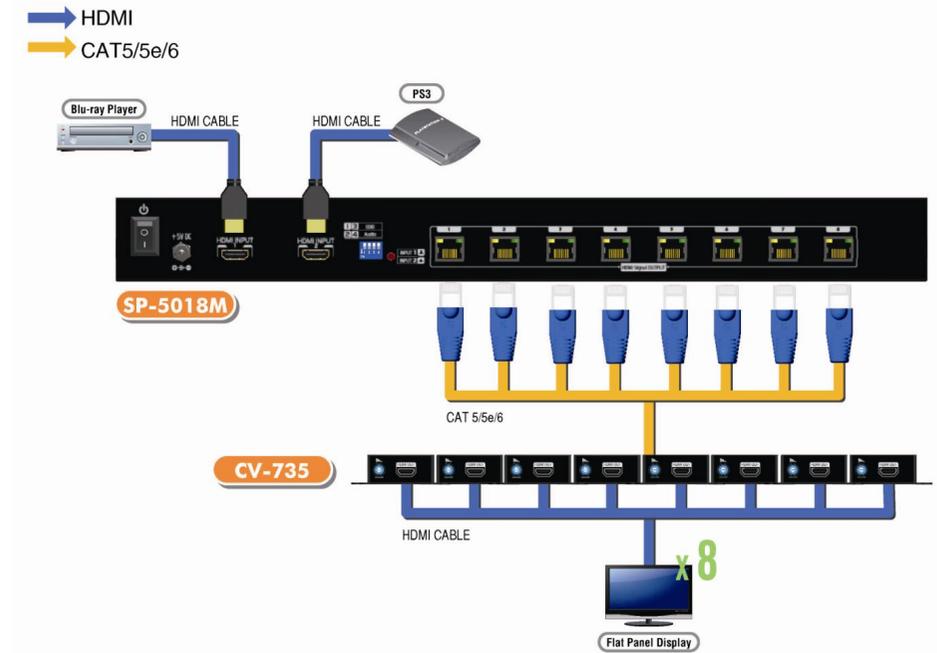
PANEL DESCRIPTIONS

Rear Panel



1. **Power:** Power on/off switch
2. **+5V DC:** Power jack for 5V DC
3. **HDMI INPUT 1-2:** Connect to one HDMI source here
4. **EDID & Audio:** DIP Switch (*see more detail in the DIP SWITCH SETTING section*)
5. **INPUT Selection:** Push-in button for switching between HDMI INPUT 1 and HDMI INPUT 2
6. **Cat.X OUTPUT 1-8:** Link to each HDMI display via a Cat-5/5e/6 cable with a HDMI over CAT5 receiver CV-735 or CV-715s

CONNECTION DIAGRAM



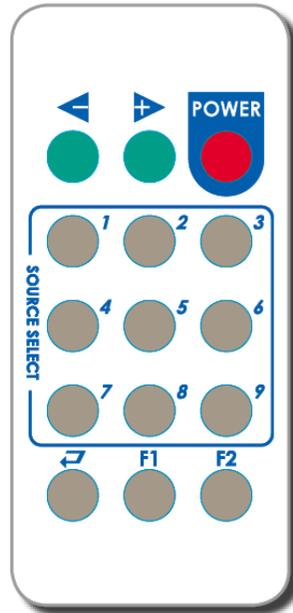
HARDWARE INSTALLATION

Broadcasts HDMI signals to eight remote displays from either of two HDMI sources

1. Turn off all devices, including sources and displays.
2. Connect HDMI sources (such as a Blu-ray Disc player) to the **HDMI INPUT 1** port and/or **HDMI INPUT 2** port.
3. Connect the receivers (CV-735 or CV-715s) via Cat-5/5e/6 cables to each **HDMI Signal OUTPUT** port.
4. Plug in 5V 4A DC power supply.
5. Power on the HDMI displays.
6. Power on the HDMI source devices.

IR CONTROL

Function Key	Function Description
POWER	Turn on/off HDMI over CAT5e/6/7 transmission on all eight output ports
	Switch to the other channel from either HDMI INPUT 1 or HDMI INPUT 2 that is in play
	Switch to the other channel from either HDMI INPUT 1 or HDMI INPUT 2 that is in play
SOURCE SELECT 1	Select HDMI INPUT 1 to be the input source
SOURCE SELECT 2	Select HDMI INPUT 2 to be the input source
F1	Mute on/off (audio off, video on) on all eight output ports



DIP SWITCH SETTING

DIP Switch position 1		Video	Audio	Description
Pin#1	Pin#2			
Pin#3	Pin#4			
OFF [↑]	OFF [↑]	Up to 1080p	Surround ²	Default Mode ³ — Up to 1080p video & surround sound audio output up to 7.1ch (DTS-HD Master Audio & Dolby TrueHD)
OFF [↑]	ON [↓]	Up to 1080p	Stereo	Safe Mode ⁴ — Enforce the system output at 1080p video and stereo audio for basic compatibility among HDTV
ON [↓]	OFF [↑]	Bypass ⁵	Bypass ⁵	EDID Learning ⁶ Mode — for learning EDID from the display while playing any received HDMI audio format
ON [↓]	ON [↓]	Bypass	Stereo	EDID Learning ⁶ & Stereo Mode — for learning EDID from the display while enforcing stereo output if any HDTV cannot play surround sound normally

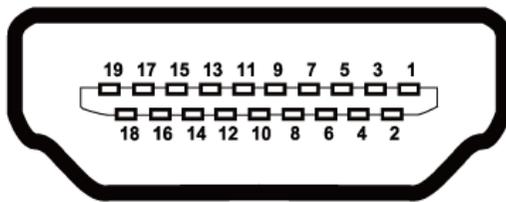
Note

- ¹ Pin-1 and pin-2 are for HDMI INPUT 1; while pin-3 and pin-4 are for HDMI INPUT 2
- ² If the HDTV shows video but without audio, please try to set audio mode to stereo.
- ³ Factory default setting is pin-1 at OFF [↑] & pin-2 at OFF [↑] for 1080p video and surround sound audio.
- ⁴ If you encounter any unsolved audio/video output problem during system installation, please turn 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.
- ⁵ 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.
- ⁶ 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.

EDID LEARNING

- The EDID learning function is only available for HDMI source device connected at **HDMI INPUT 1** port.
- To make the SP-5018M learn the EDID of the desired display, please connect the display to the **HDMI INPUT 1** port via a HDMI cable.
- Set the DIP switch position pin-1 at ON [↓].
- Reboot the SP-5018M and you should see the red LED of the **INPUT 1** on the front panel will keep blinking to indicate the EDID learning sequence is underway. The EDID learning sequence is complete when the **INPUT 1** LED stops blinking.
- Resume the installation. Connect the sources back to HDMI inputs and let the displays connect to the receiver units via Cat-5e/6/7 cable.
- 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.

HDMI



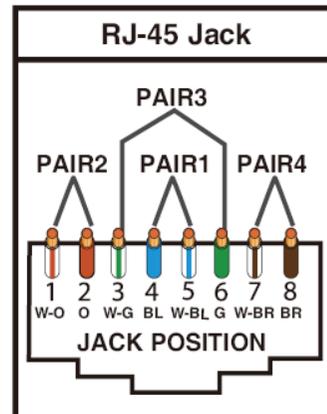
Type A (Receptacle) HDMI

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+		

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.

RJ45 / Cat.X

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+



WARRANTY

The SELLER warrants the **SP-5018M 2x8 HDMI Splitter over Cat.X** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year 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 **SP-5018M** features and specifications is subject to change without further notice.