SP-5012

1x2 HDMI Splitter over Cat.X with Local Out

User Manual

Safety and Notice

The **SP-5012 1x2 HDMI Splitter over Cat.X with Local Out** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **SP-5012** 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.

TABLE OF CONTENTS

INTRODUCTION

The **SP-5012** **1x2 HDMI Splitter over Cat.X with Local Out** 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. The input HDMI source can be duplicated and distributed to 1 HDMI enable displays through cost effective Cat-5/5e/6 cables with HDMI over CAT5 receivers (CV-735 and/or CV-715s). For convenience, SP-5012 is also equipped a local HDMI output for monitoring. 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
- Supports audio output
- Supports default HDMI EDID and has the ability to learn the EDID of displays
- Extends up to 15m (50ft) of input HDMI cable
- Extends up to 15m (50ft) of output HDMI cable
- Extends up to 60m (200ft) (720p / 1080i) of output Cat.X cable
- Extends up to 40m (130ft) (1080p) of output Cat.X cable
- Minimizes the cable skew by adjustable 8-level equalization control
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.X cable transmission
- Allows cascading
- Perfectly integrated with other HDMI over Cat.X 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 RJ45 connectors is recommended.

SPECIFICATIONS

Model Name		SP-5012
Technical		
Role of usage		1x2 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 up to 36-bit color
Transmission over UTP cable (24-bit)		Full HD (1080p) – 40m (130ft) [Cat5e] / 50m (165ft) [Cat6] HD (720p/1080i) – 50m (165ft) [Cat5e] / 60m (200ft) [Cat6]
Audio support		Surround sound (up to 7.1ch) or stereo digital audio
Signal equalization		N/A
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
Output		1x HDMI + 1x RJ45 + 1x 3.5mm audio socket
HDMI connector		Type A [19-pin female]
RJ45 connector		WE/SS 8P8C with 2 LED indicators
3.5mm connector		Earphone jack for stereo audio
DIP switch		2-pin for EDID learning and audio setting modes
Rotary control switch		None
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	180 x 107 x 27mm [7.1" x 4.2" x 1.1"]
	Package	200 x 330 x 95mm [7.9" x 1'1" x 3.7"]
	Carton	495 x 440 x 380mm [1'7" x 1'5" x 1'3"]
Weight	Model	515g [1.1 lbs]
	Package	1000g [2.2 lbs]
Fixedness		Wall-mounting case
Power supply		5V 4A DC
Power consumption		6 Watts [max]
Operation temperature		0~40°C [32~°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PACKAGE CONTENTS

- 1x SP-5012
- 1x DC 5V 4A wall wart
- 1x User Manual

PANEL DESCRIPTIONS

Rear Panel
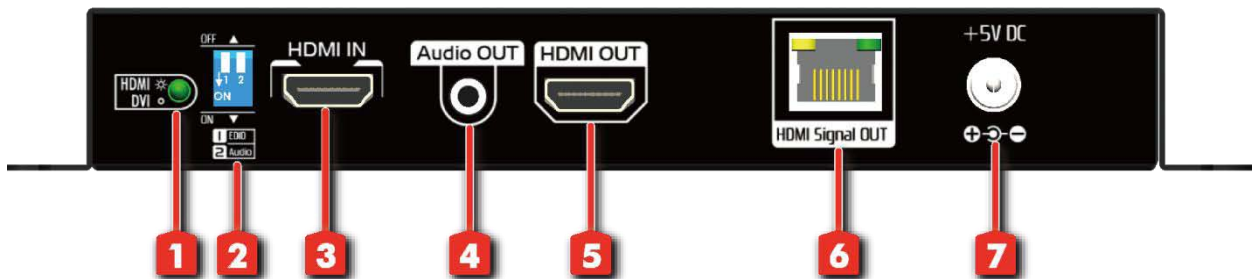
1. **HDMI / DVI LED:** Input signal format indicator [bright - HDMI source signal is detected; dark - no HDMI signal.]

2. **DIP SWITCH:** See more detail in the DIP SWITCH SETTING section.

3. **HDMI IN:** Connect a HDMI source with a HDMI M-M cable here

4. **Audio OUT:** Plug in a local speaker here

5. **HDMI OUT:** Connect to a HDMI display with a HDMI M-M cable here

6. **HDMI Signal OUT:** Link to each HDMI display via a Cat-5/5e/6 cable with a HDMI over Cat.X receiver.
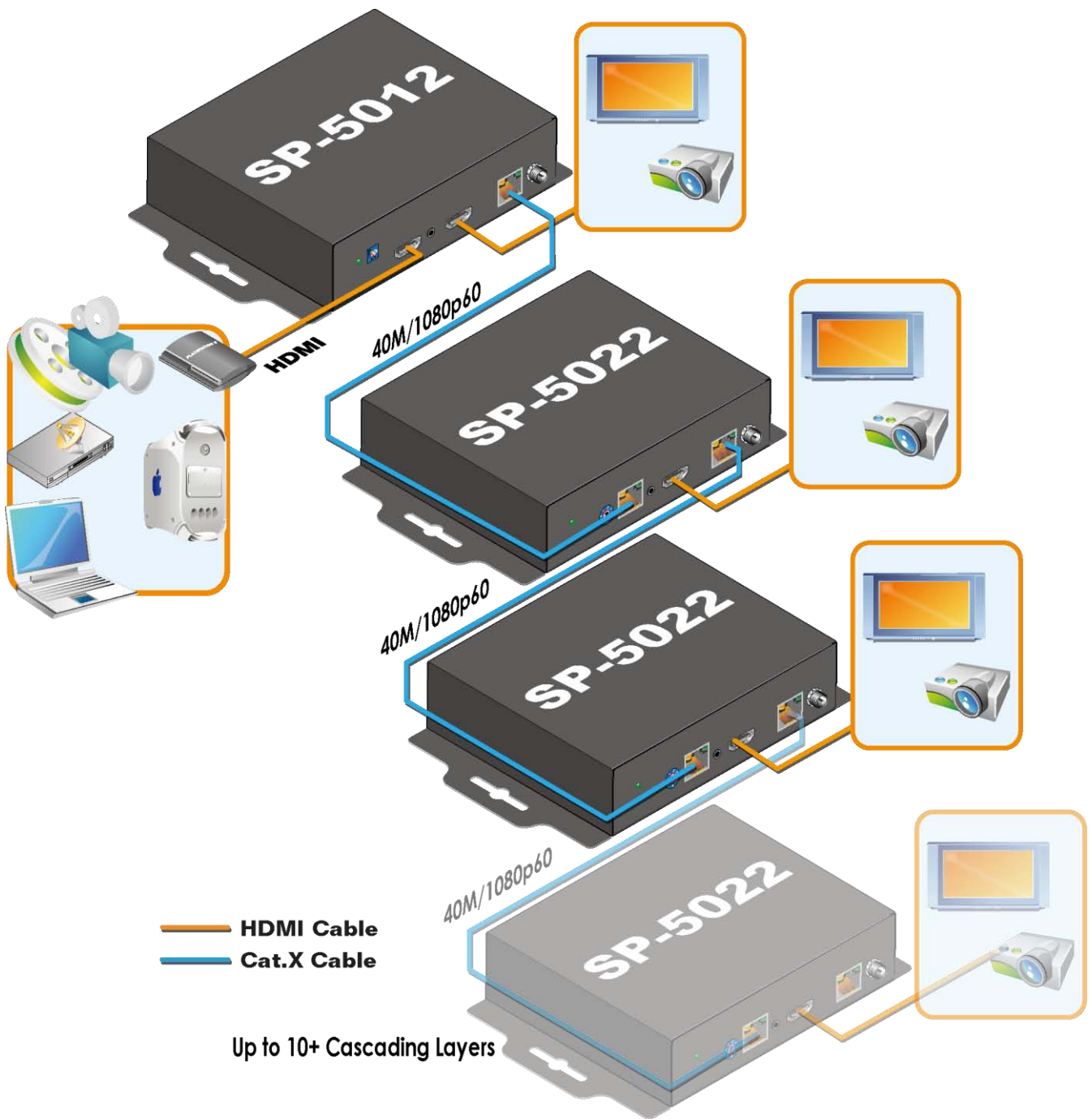
7. **+5V DC:** Connect to 5V 4A DC power supply

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

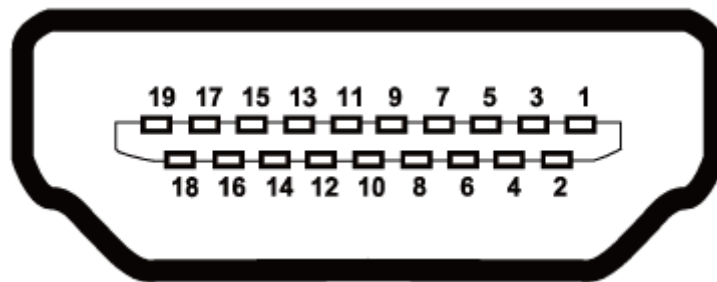## *Note for EDID (Extended Display Identification Data) learning*

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. Connect the HDTV sets to the HDMI Local Output via HDMI cable, then set pin-1 at ON [⬇]. Then please wait for 5~10 seconds for completing the EDID learning procedure. If you want to learn the EDID from another HDTV, you must set pin-1 at OFF [⬆] first and repeat this procedure all over again.*

SP-5012

SP-5022

SP-5022

SP-5022

HDMI

40M/1080p60

40M/1080p60

40M/1080p60

HDMI Cable

Cat.X Cable

Up to 10+ Cascading Layers

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+		

RJ45 / Cat.X

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+
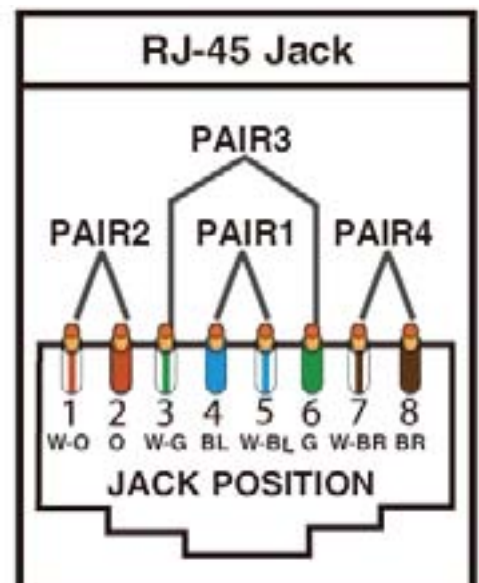
NOTICE

1. 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 [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.

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.

Performance Guide for HDMI over Category Cable Transmission

Performance rating		Type of category cable		
Wiring	Shielding	CAT5	CAT5e	CAT6
Solid	Unshielded (UTP)	★★★	★★★★	★★★★★
Solid	Shielded (STP)	★★★	★★★	★★★★
Stranded	Unshielded (UTP)	★	★★	★★
Stranded	Shielded (STP)	★	★	★★
Termination		Please use EIA/TIA-568-B termination (T568B) at any time		

WARRANTY

The SELLER warrants the **SP-5012 1x2 HDMI Splitter over Cat.X with Local Out** 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-5012** features and specifications is subject to change without further notice.