SIMPLIFIED
MFG

SP14CAT50

18Gbps HDMI 1×4 50m splitter over category cable

User Manual

VER 2.0

Thank you for purchasing this device

The Simplified MFG SP14CAT50 was designed to provide years of reliable service. Please read this manual thoroughly before connecting, operating, or adjusting this device. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended to protect and extend the life of your equipment. The HDSURGE is designed to protect your system when using cable and satellite boxes. It is highly recommended that you use one with these types of sources.

Table of Contents

1. Introduction

The SP14CAT50 HDMI 1x4 on category cable splitter can distribute 1 source signal to any 4 display devices. The HDMI signal transmission distance can be extended up to 50 meters at the resolution of 4K2K@60Hz, or 70 meters at 1080P@60Hz via a single CAT6/6a/7 cable. The SP14CAT50 supports IR return from RX and advanced EDID management.

2. Features

- HDMI 2.0b (18Gbps), HDCP 2.2 and HDCP 1.x compliant
- Supports video resolution up to 4K2K@60Hz 4:4:4
- Supports HDR, HDR10+, and HLG
- Supports all HDMI audio formats pass-through
- Audio Breakout is available in stereo (3.5mm mini-jack) and Coaxial S/PDIF at TX
- Distance over Cat6/6a/7 is 50m (165ft) at 4K / 70m (231ft) at 1080p
- Input is one HDMI Type-A with 1 HDMI loop output and 4 UTP outputs
- EDID can be copied or can be provided by internal EDID library
- RX Devices are powered by TX unit
- Compact design

3. Package Contents

1 × SP14CAT50 main chassis transmitter
4 × RX devices
1 × IR blaster cables (1.5 meters)
4 × 20K~60KHz IR receiver cables (1.5 meters)
1 × 12V/2.5A DC locking power adapter
1 × User manual

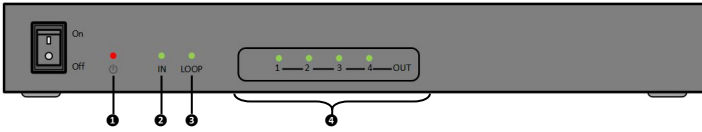
4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2/1.x
Video Bandwidth	594MHz/18Gbps
Video Resolution	Up to 4k2k@60Hz 4:4:4
Color Depth	8-bit,10-bit,12-bit(1080p@60Hz) 8-bit (4K2K@60Hz YUV4:4:4) 8-bit,10-bit,12-bit(4K2K@60Hz YCbCr 4:2:2/4:2:0)
Color Space	RGB 4:4:4, YCbCr 4:4:4 / 4:2:2 /4:2:0
HDR	Support HDR, HDR10+, and HLG
HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital+, Atmos, DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X
Coaxial Audio Formats	PCM2.0, Dolby Digital / Plus, DTS 2.0/5.1
Analog Audio Formats	PCM 2.0CH
ESD Protection	Human body model—±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Input	1×HDMI Type A (19-pin female)
Output	1×HDMI Type A (19-pin female） 4x UTP OUT [RJ45] 1x Coaxial Audio OUT [RCA] 1x 3.5mm Audio OUT [3.5mm mini jack]
Control	1×RS-232 (3-pin phoenix connector） 1x EDID DIP switch [5-pin] 1x IR IN [3.5mm Stereo Mini-jack] 1x IR OUT [3.5mm Stereo Mini-jack]

Mechanical	
Housing	Metal Enclosure
Silkscreen Color	Black
Dimensions	Transmitter: 440mm (W) × 130mm (D) × 44mm (H) Receiver: 140mm (W) × 65mm (D) × 18mm (H)
Weight	Transmitter: 1.62kg Receiver: 246g
Power Supply	Input: AC100 - 240V 50/60Hz, Output: DC 24V/3.75A (US/EU standards, CE/FCC/UL certified)
Power Consumption	72W
Operation Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (non-condensing)

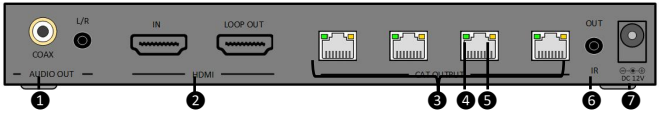
5. Operation Controls and Functions

5.1 Transmitter

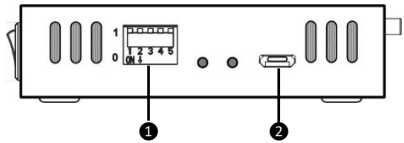


No.	Name	Function Description
1	POWER LED	When the SP14CAT50 is powered on, the red power LED will be illuminated
2	IN LED	When the HDMI IN port is connected to an active source device, the green LED will be illuminated
3	LOOP LED	When the HDMI LOOP OUT port connects an active display device, the green LED will be illuminated
4	OUT (1~8) LED	When the UTP OUTPUT port connects to a RX device, the corresponding green OUT LED will be illuminated

Rear Panel

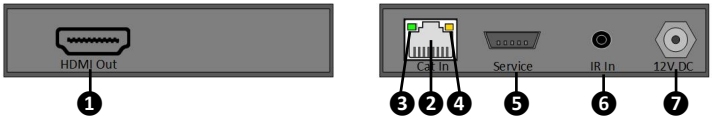


No.	Name	Function Description
1	AUDIO OUT	COAX for multi-channel audio breakout and 3.5mm mini jack for stereo breakout for connection to amplifier
2	HDMI Ports	IN: HDMI input port. Connect to HDMI source such as a HDMI stream, BRP, or STB with HDMI cable LOOP OUT: This port can be used to go to a local display or a second splitter
3	CAT OUTPUT port (1~4)	Connect to the supplied RX devices with Cat 6/6A/7 category cable
4	Link Signal LED (Green)	▪ Illuminated: TX and RX are connected well ▪ Dark: No or poor connection from TX to RX
5	Data Signal LED (Orange)	▪ Illuminated: Active HDMI connection ▪ Dark: No signal transmission ▪ Flashing: HDMI signal without HDCP
6	IR OUT	For connecting the IR blaster which outputs the IR signals that the RX devices receive via the supplied IR receivers
7	DC 12V	DC 12V power supply connection for the supplied adapter that connects to an AC outlet. (**Note:** The RX devices are powered by the TX device via the category cable)



No.	Name	Function Description
1	EDID DIP Switch	Used to set the EDID shown to the source. Please refer to section number 6 for more information
2	SERVICE Port	Used for firmware update or for serial control. Please refer to section number 7 for more information

5.2 Receiver

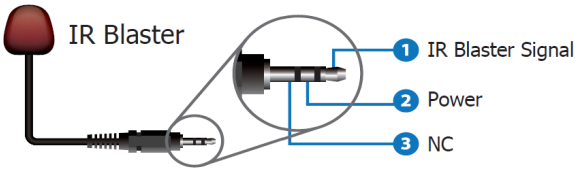


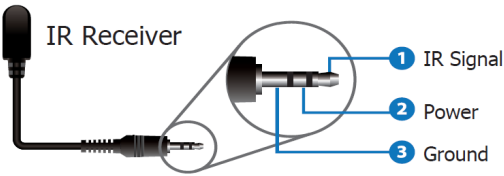
No.	Name	Function Description
1	HDMI OUT	Connects to a display via an HDMI Cable
2	Connection Signal Indicator LED (Green)	▪Illuminated: Transmitter and Receiver are in good connection status ▪Flashing: Transmitter and Receiver are in poor connection status ▪Dark: Transmitter are Receiver are not connected
3	UTP IN	Connect to the UTP OUTPUT port on the transmitter with a CAT cable
4	Data Signal Indicator LED (Orange)	▪ Illuminating: HDMI signal with HDCP ▪ Flashing: HDMI signal without HDCP ▪ Dark: No HDMI signal
5	SERVICE Port	Used for firmware updates
6	IR INPUT	The IR Receiver is plugged in here. IR signals from the TX are sent back the TX unit and are output via IR OUT
7	DC 12V Input	Plug DC 12V/1A power supply into the unit and connect the adapter to an AC outlet (**Note:** The UTP receiver is powered by the transmitter via a CAT cable.)

5.3 IR Pin Definition

IR Receiver

IR Blaster





Note: When the angle between the IR receiver and the remote control is ± 45 °, the transmission distance is 0-5 meters; when the angle between the IR receiver and the remote control is ± 90 °, the transmission distance is 0-8 meters.

6. EDID Mode

The defined EDID setting list of the product is shown as below:

EDID Mode	EDID Description
11111	1080p, Stereo Audio 2.0
11110	1080p, Dolby/DTS 5.1
11101	1080p, HD Audio 7.1
11100	1080i, Stereo Audio 2.0
11011	1080i, Dolby/DTS 5.1
11010	1080i, HD Audio 7.1
11001	1080p 3D, Stereo Audio 2.0
11000	1080p 3D, Dolby/DTS 5.1
10111	1080p 3D, HD Audio 7.1
10110	4K2K 30Hz 4:4:4, Stereo Audio 2.0
10101	4K2K 30Hz 4:4:4, Dolby/DTS 5.1
10100	4K2K 30Hz 4:4:4, HD Audio 7.1
10011	4K2K 60Hz 4:2:0, Stereo Audio 2.0
10010	4K2K 60Hz 4:2:0, Dolby/DTS 5.1
10001	4K2K 60Hz 4:2:0, HD Audio 7.1
10000	4K2K 60Hz 4:4:4, Stereo Audio 2.0
01111	4K2K 60Hz 4:4:4, Dolby/DTS 5.1
01110	4K2K 60Hz 4:4:4, HD Audio 7.1
01101	4K2K 60Hz 4:4:4, Stereo Audio 2.0 HDR
01100	4K2K 60Hz 4:4:4, Dolby/DTS 5.1 HDR
01011	4K2K 60Hz 4:4:4, HD Audio 7.1 HDR
01010	Copy From Loop Out
01001	Copy From Cat 1 OUT
01000	Copy From Cat 2 OUT
00111	Copy From Cat 3 OUT
00110	Copy From Cat 4 OUT
00101	1080p, Stereo Audio 2.0
00100	1080p, Stereo Audio 2.0
00011	1080p, Stereo Audio 2.0
00010	1080p, Stereo Audio 2.0
00001	1080p, Stereo Audio 2.0
00000	Control Mode

7. ASCII Commands

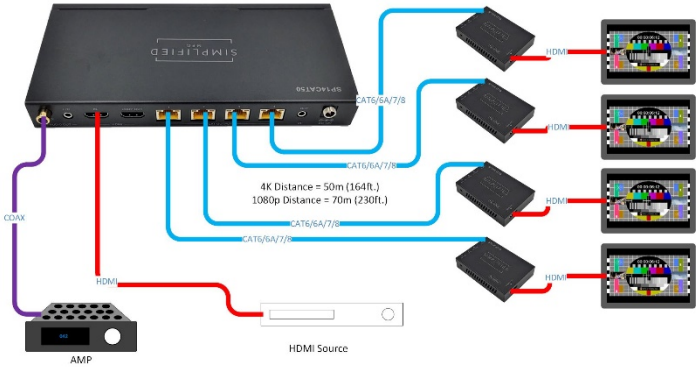
The SP14CAT50 also supports ASCII command control. Connect to the SERVICE port on the SP14CAT50 to send ASCII commands to the unit. The ASCII command list about the product is shown as below:

ASCII Commands				
Serial port protocol. Baud rate: 115200, Data bits: 8bit, Stop bits:1, Check bit: 0				
x - Parameter 1 y - Parameter 2 ! - Delimiter				
Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
Power				
s power z!	Power on/off the device,z=0~1 (z=0 power off, z=1 power on)	s power 1!	Power on System Initializing... Initialization Finished! FW version x.xx.xx	power on
r power!	Get current power state	r power!	power on/power off	
s reboot!	Reboot the device	s reboot!	reboot	
System Setup				
help!	List all commands	help!		
r type!	Get device model	r type!	HDC-SPB14D60	
r status!	Get device current status	r status!	Get the unit all status: power, in/out connection, edid mode	
r fw version!	Get Firmware version	r fw version!	MCU BOOT: Vx.xx.xx MCU APP: Vx.xx.xx	
r link in!	Get the connection status of the input port	r link in!	HDMI IN: connect	
r link out y!	Get connection status of y output port, y=0~4(0=all, 1~4=CAT 1~4)	r link out 1!	CAT OUT1: connect	
r link loop out y!	Get the connection status of the y loop output port, y=1	r link loop out 1!	HDMI LOOP OUT: connect	
s reset!	Reset to factory defaults	s reset!	Reset to factory defaults System Initializing... Initialization Finished! FW version x.xx.xx	

Command	Function Description	Example	Feedback	Default Setting
Output Setting				
s hdmi stream z!	Set hdmi loop output stream on/off z=0~1(0:disable,1:enable)	s hdmi stream 1 !	Enable hdmi loop out stream Disable hdmi loop out stream	enable
s cat y stream z!	Set cat output y stream on/ off, y=0~4(0=all) z=0~1 (0:disable,1:enable)	s cat 1 stream 1 ! s cat 0 stream 1 !	Enable cat output 1 stream Disable cat output 1 stream Enable cat all outputs stream Disable cat all outputs stream	enable
r hdmi stream!	Get hdmi loop out stream status	r hdmi stream!	Enable hdmi loop output stream	
r cat y stream!	Get cat output y stream status, y=0~4(0=all)	r cat 1 stream!	Enable cat output 1 stream	
s hdmi hdcp z!	set hdmi loop output port hdcp status	s hdmi hdcp 1!	hdmi loop out hdcp on	all hdmi out hdcp active
r hdmi hdcp!	Get HDCP status of loop out	r hdmi hdcp!	hdmi loop out hdcp on	
s cat y hdcp z!	set cat output y port hdcp status y=0~2(0=all) z=0~1 (1=on,0=off)	s cat 1 hdcp 1!	cat out 1 hdcp on	all cat out hdcp active
r cat y hdcp!	Get HDCP status of cat out y, y=0~2(0=all)	r cat 1 hdcp!	cat out 1 hdcp on	
s cat y dsc mode z!	set cat output y port dsc mode status y=0~4(0=all) z=1~3 (1=Cat cable distance normal Mode, 2= Cat cable distance 35M Mode,3= Cat cable distance 70M Mode)	s cat 1 dsc mode 2!	cat out 1 dsc mode 2	Cat cable distance 35M Mode(35M)
r cat y dsc mode!	Get dsc mode of cat out y, y=0~4(0=all)	r cat 1 dsc mode!	cat out 1 dsc mode 2	
s audio mute 1!	set audio output port mute status (1-mute, 0-umute)	s audio mute 1!	s audio mute 1	s audio mute (0)
r audio mute!	Get audio output mute status	r audio mute!	audio mute 1	

Command	Function Description	Example	Feedback	Default Setting
EDID Setting				
s edid in from z!	Set input EDID from default EDID z, z=1~26 1, 1080p,Stereo Audio 2.0 2, 1080p,Dolby/DTS 5.1 3, 1080p,HD Audio 7.1 4, 1080i,Stereo Audio 2.0 5, 1080i,Dolby/DTS 5.1 6, 1080i,HD Audio 7.1 7, 3D,Stereo Audio 2.0 8, 3D,Dolby/DTS 5.1 9, 3D,HD Audio 7.1 10, 4K2K30_444, Stereo Audio. 2.0 11, 4K2K30_444, Dolby/DTS 5.1 12, 4K2K30_444,HD Audio 7.1 13, 4K2K60_420, Stereo Audio 2.0 14, 4K2K60_420, Dolby/DTS 5.1 15, 4K2K60_420,HD Audio 7.1 16, 4K2K60_444, Stereo Audio 2.0 17, 4K2K60_444, Dolby/DTS 5.1 18, 4K2K60_444, HD Audio 7.1 19, 4K2K60_444, Stereo 2.0 HDR 20, 4K2K60_444, Dolby/DTS 5.1HDR 21, 4K2K60_444, HD Audio 7.1 HDR 22, copy from hdmi loop out 23, copy from cat output 1 24, copy from cat output 2 25, copy from cat output 3 26, copy from cat output 4	s edid in from 1!	input EDID:1080p, Stereo Audio 2.0 Please toggle EDID dip switch to 00000!	1080p,Stereo Audio 2.0
r edid in!	Get EDID status of the input	r edid in!	input EDID: 4K2K60_ 444,Stereo Audio 2.0	
r edid in data!	Get the EDID data of the hdmi input	r edid in data!	EDID data : 00 FF FF FF FF FF 00	

8. Application Example



9. Warranty and Contact Information

Should you feel that this product does not function adequately due to defects in materials or workmanship, we (referred to as "the warrantor") will, for the length of the period indicated below (starting from the original date of the purchase) either a) repair the product with new or refurbished parts. Or b) Replace the product with new or refurbished product. All Simplified MFG products are covered by a 3-year PARTS and LABOR warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of the product if deemed necessary. The decision to repair or replace is made by the warrantor. The purchaser must mail in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is non-transferrable to subsequent owners, even during the warranty period. A purchase receipt or other proof of purchase date is required for the limited warranty service.

Sales and Tech Support
P. 833-HDMI-411 (833-436-4411)
E. info@simplifiedmfg.com

SIMPLIFIED
MFG

Simplified MFG • 550 W Baseline Rd Ste 102-121 • Mesa AZ 85210