SIMPLIFIED
M F G

SP14CAT50
1 to 4 HDMI 2.0b 50m
Splitter Kit

User Manual

VER 1.0

Thank you for purchasing this product

The Simplified MFG SP14CAT50 was designed to provide years of reliable service. Please read these instructions carefully before connecting, operating or adjusting this product. 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 in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

The SP14CAT50 HDMI 1x4 Splitter can distribute 1 HDMI source signal to any 4 display devices. The signal transmission distance can be extended up to 35 meters at the resolution of 4K2K@60Hz, 50 meters at 4K2K@30Hz, 60 meters at 1080P@60Hz via a single CAT6/6a/7 cable. The SP14CAT50 supports up to 7.1CH HD audio pass-through. There is a source audio extraction at the TX and a "global" EDID can be set as well.

2. Features

- HDMI 2.0b, HDCP 2.2 and HDCP 1.4 compliant
- 18Gbps video bandwidth
- Supports video resolution up to 4K2K@50/60Hz 4:4:4
- Supports HDR, HDR10+, HLG and Dolby vision
- Supports up to 7.1CH HD audio pass-through
- Supports digital and analog audio breakout via Coaxial S/PDIF or 3.5mm
- Extends the signal transmission distance up to 35 meters at the resolution of 4K2K@60Hz, 50 meters at 4K2K@30Hz, 60 meters at 1080P@60Hz via a single CAT6/6a/7 cable
- 1 HDMI input, 1 HDMI loop output and 4 RJ-45 outputs.
- Supports one-way IR control signal pass-through from Display to TX
- Advanced EDID management
- The RX devices are powered by the TX device
- Compact design for easy and flexible installation

3. Package Contents

- 1× 18Gbps 1×4 HDMI Splitter over 60m CAT
- 4× CAT Receivers
- 4× IR Receivers
- 1× IR Blaster
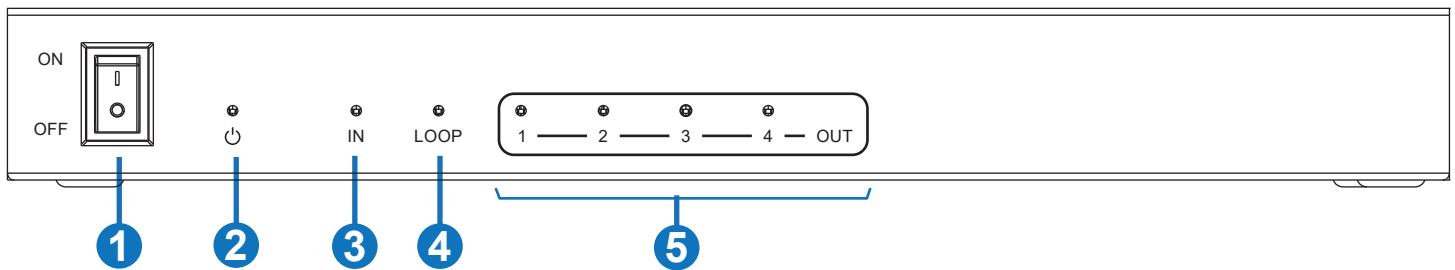- 1× 12V/2.5A DC Locking Power Adapter
- 1× User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2/1.4
Video Bandwidth	594MHz/18Gbps
Video Resolution	Up to 4k2k@50/60Hz 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, YCbCr 4:4:4 / 4:2:2. YUV 4:2:0
HDR	Support HDR10, HDR10+, HLG, Dolby vision
HDMI Audio Formats	LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus(DD+), 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 CAT OUT [RJ45, 8-pin female] 1x Coaxial Audio OUT [RCA] 1x L/R Audio OUT [3.5mm Stereo Mini-jack]
Control	1×SERVICE (Micro USB, Update port） 1x EDID DIAL switch [5-pin] 1x IR OUT [3.5mm Stereo Mini-jack]

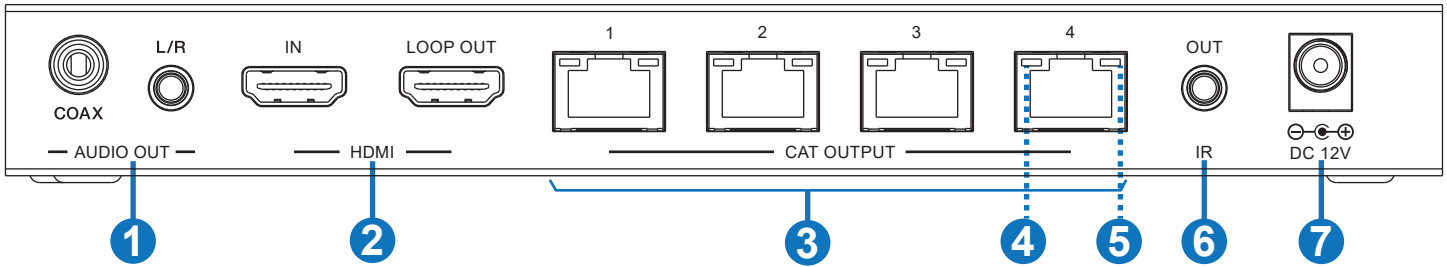| Mechanical	
Housing	Metal Enclosure
Silkscreen Color	Black
Dimensions	Transmitter: 210mm (W) × 100mm (D) × 25mm (H) Receiver: 88mm (W) × 61mm (D) × 18mm (H)
Weight	Transmitter: 595g (1lb.,5oz) Receiver:155g (5.5oz.)
Power Supply	Input: AC100 - 240V 50/60Hz, Output: DC 12V/2.5A (US/EU standards, CE/FCC/UL certified)
Power Consumption	14W
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)

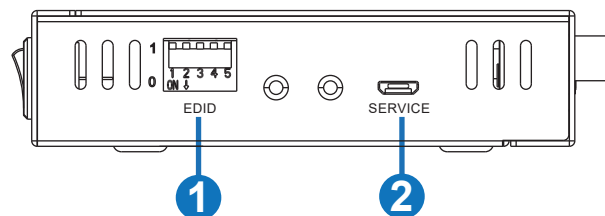# 5. Operation Controls and Functions

5.1 Transmitter Panel

Front Panel

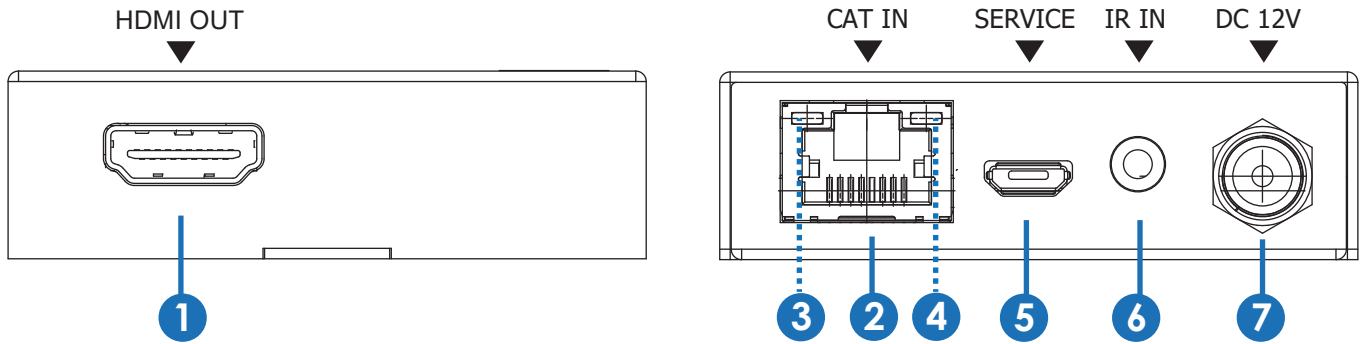| No.	Name	Function Description
1	POWER switch	Press this switch to power on/off the device.
2	POWER LED	When the device is powered on, the red power LED will be illuminated.
3	IN LED	When the HDMI IN port connects to an active source device, the green LED will illuminate.
4	LOOP LED	When the HDMI LOOP OUT port connects to an active display, this LED will illuminate
5	OUT LED (1~4)	When the CAT OUTPUT port connects to an active display device, the corresponding green OUT LED will be illuminated.

Rear Panel

No.	Name	Function Description
1	AUDIO OUT (COAX, L/R)	Coaxial/analog audio breakout port for connecting to an amplifier.
2	HDMI port	IN: HDMI input port, connect to HDMI source device such as a streamer or BRP with a HDMI cable.
		LOOP OUT: HDMI loop output port, connect to the HDMI display device such as TV or Monitor with an HDMI cable.
3	CAT OUTPUT port (1~4)	Connect to the CAT IN port of the CAT receiver with a CAT cable.
4	Link Signal Indicator lamp (Green)	▪ Illuminated: TX and RX are connected ▪ Dark: TX and RX are not connected
5	Data Signal Indicator lamp (Orange)	▪ Illuminated: There is an active HDMI signal ▪ Dark: No signal transmission.
6	IR OUT	Connect the IR Blaster cable to transmit IR signal from the CAT receiver's IR input.
7	DC 12V	DC 12V power supply connection for the adapter to connect to an AC outlet. (**Note:** The RX Devices are powered by the TX device via the CAT cable.)

Side Panel

No.	Name	Function Description
1	EDID DIP Switch	Used to set EDID mode. Please refer to Section 6 "EDID Mode" for details.
2	SERVICE port	Used for firmware update or serial control. Please refer to Section 7 "ASCII Commands".

5.2 CAT Receiver

HDMI OUT

CAT IN SERVICE IR IN DC 12V

① ③ ② ④ ⑤ ⑥ ⑦

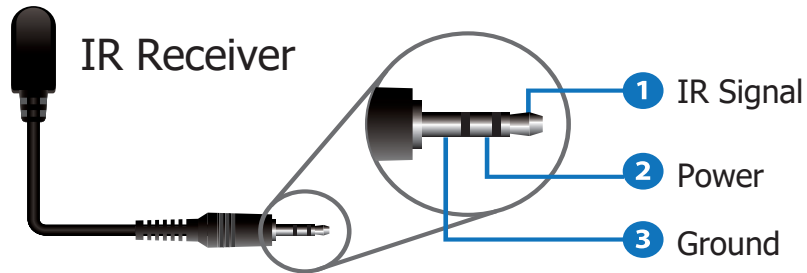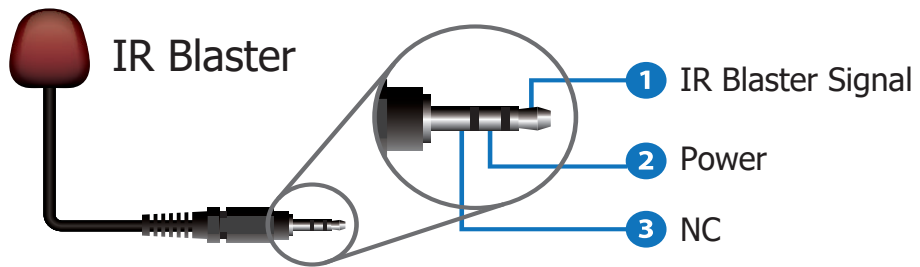| No.	Name	Function Description
1	HDMI OUT	HDMI output port, connects to HDMI display device such as TV or Projector with an HDMI cable.
2	CAT IN	Connect to the CAT OUTPUT port on the transmitter with a CAT cable.
3	Power Indicator LED (Green)	When the receiver is powered on, the power LED will be illuminated.
4	Data signal Indicator LED (Orange)	When there is HDMI signal between the transmitter and the receiver, the LED will be illuminated
5	SERVICE port	Used for firmware update.
6	IR IN	Connect to the IR Receiver cable. The IR signal will send to the IR OUT port of the TX device.
7	DC 12V	In this case the RX is powered by the TX device and there is no need to use this power connection withe this kit.

5.3 IR Pin Definition

IR Receiver

IR Blaster

IR Blaster

1. IR Blaster Signal
2. Power
3. NC

IR Receiver

1. IR Signal
2. Power
3. Ground

6. EDID Mode
The EDID setting list of the is shown as below:

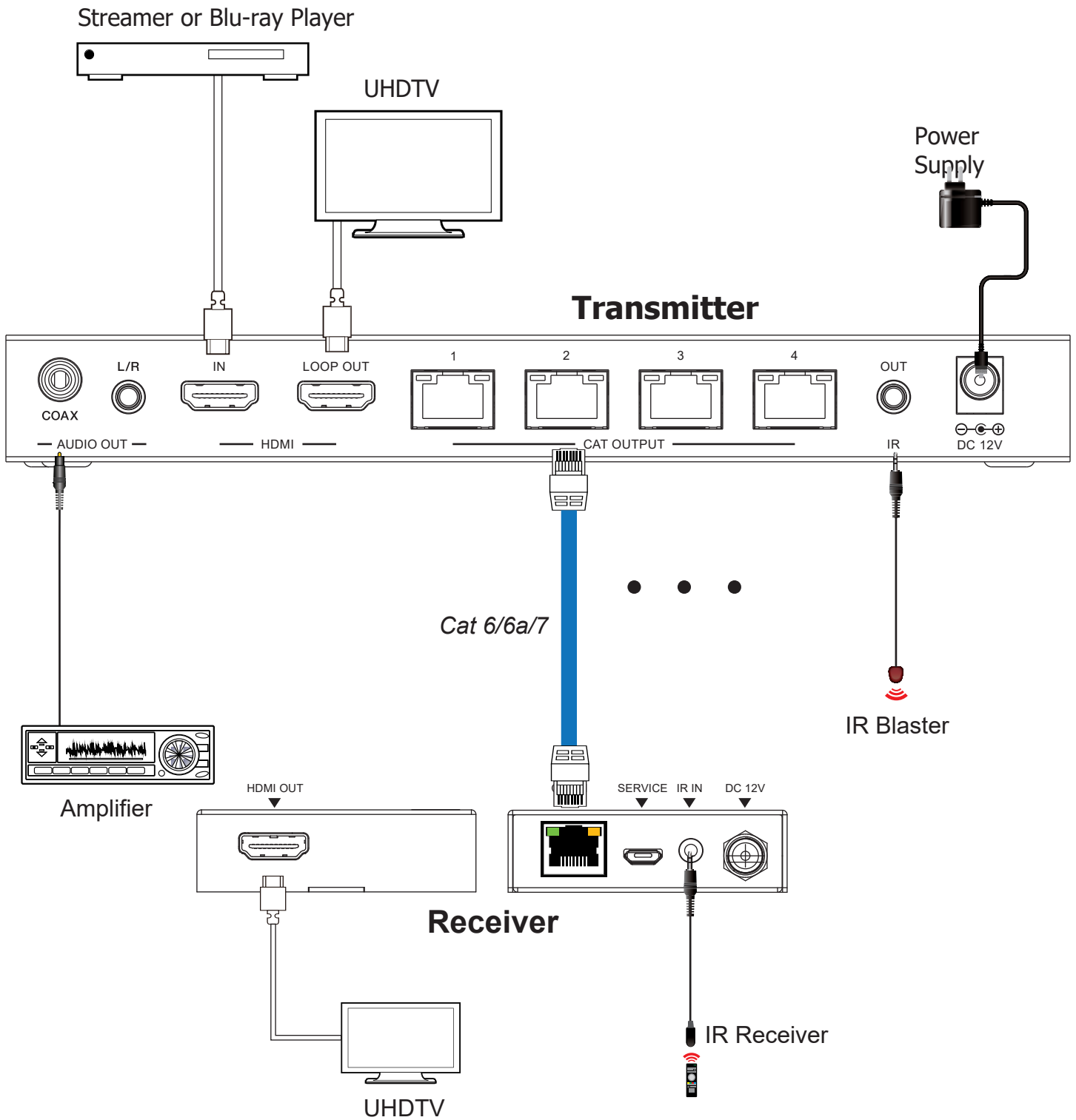| EDID Mode	EDID Description
11111	1080P, Stereo Audio 2.0
11110	1080P, Dolby/DTS 5.1
11101	1080P, HD Audio 7.1
11100	1080I, Stereo Audio 2.0
11011	1080I, Dolby/DTS 5.1
11010	1080I, HD Audio 7.1
11001	1080P 3D, Stereo Audio 2.0
11000	1080P 3D, Dolby/DTS 5.1
10111	1080P 3D, HD Audio 7.1
10110	4K2K30Hz_444, Stereo Audio 2.0
10101	4K2K30Hz_444, Dolby/DTS 5.1
10100	4K2K30Hz_444, HD Audio 7.1
10011	4K2K60Hz_420, Stereo Audio 2.0
10010	4K2K60Hz_420, Dolby/DTS 5.1
10001	4K2K60Hz_420, HD Audio 7.1
10000	4K2K60Hz_444, Stereo Audio 2.0
01111	4K2K60Hz_444, Dolby/DTS 5.1
01110	4K2K60Hz_444, HD Audio 7.1
01101	4K2K60Hz_444, Stereo Audio 2.0 HDR
01100	4K2K60Hz_444, Dolby/DTS 5.1 HDR
01011	4K2K60Hz_444, HD Audio 7.1HDR
01010	COPY_FROM_LOOP OUT
01001	COPY_FROM_CAT OUT1
01000	COPY_FROM_CAT OUT2
00111	COPY_FROM_CAT OUT3
00110	COPY_FROM_CAT OUT4
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 the SERVICE port of the product to the control system with an USB cable.
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 FF 00 ……	

8. Application Example

Streamer or Blu-ray Player

UHDTV

Power Supply

Transmitter

COAX	L/R	IN	LOOP OUT	1	2	3	4	OUT	DC 12V

— AUDIO OUT — | — HDMI — | — CAT OUTPUT — | IR | DC 12V

Cat 6/6a/7

IR Blaster

Amplifier

HDMI OUT

Receiver

SERVICE   IR IN   DC 12V

IR Receiver

UHDTV

7 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
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