

18Gbps HDMI over CAT Extender with eARC/ARC (100m)



User Manual

VER 1.1

Thank you for purchasing this product

For optimum performance and safety, 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, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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1. Introduction

This 18Gbps HDMI over CAT Extender, which is based on SDVoE technology, can extend uncompressed HD/UHD video and audio signals, eARC/ARC, RS-232, bi-directional IR, and 1GbE Ethernet signals up to 100m/328ft via a single CAT6A/7 cable. Video resolution is up to 4K2K@50/60Hz 4:4:4. Both transmitter and receiver support audio de-embedding. The Extender supports eARC/ARC from RX's HDMI output pass through to TX's HDMI input or de-embedding to TX's HDMI output and SPDIF output ports. It also supports CEC pass-through and bi-directional POC function.

The Extender offers the most convenient solution for HDMI extension via a single CAT cable with long distance capability, and is the perfect solution for home/commercial application.

2. Features

- ☆ HDMI 2.0b and HDCP 2.3 compliant
- ☆ Uncompressed 4K2K@50/60Hz 4:4:4 up to 18Gbps video bandwidth
- ☆ HDR, HDR10, HDR10+, Dolby Vision and HLG pass through
- ☆ LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD pass through
- ☆ Signal extended distance up to 328ft/100 meters via a single CAT6A/7 cable
- ☆ Supports eARC/ARC function (the eARC/ARC audio is returned to the HDMI IN port, HDMI OUT port and SPDIF OUT port of the transmitter.)
- ☆ Supports SPDIF audio from RX to TX transmission
- ☆ Bi-directional IR, RS-232 (only supports 115200bps) and 1G Ethernet signal pass-through
- ☆ Supports CEC pass-through
- ☆ Bi-directional 24V POC function

3. Package Contents

- ① 1 x HDMI Extender (Transmitter)
- ② 1 x HDMI Extender (Receiver)
- ③ 1 x IR Blaster Cable (1.5 meters)
- ④ 1 x IR Receiver Cable (1.5 meters)
- ⑤ 2 x 3pin-3.81mm Phoenix Connectors
- ⑥ 2 x Mounting Ears
- ⑦ 4 x Machine Screws (KM3*6)
- ⑧ 1 x 24V/1A Locking Power Supply
- ⑨ 1x User Manual

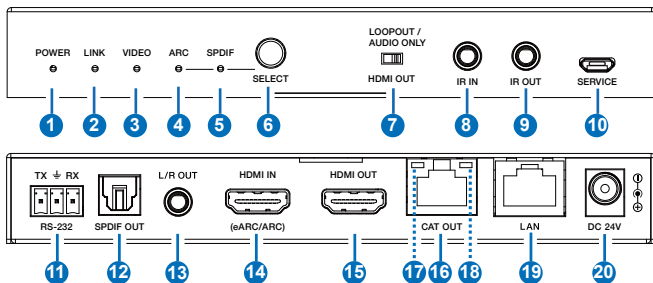
4. Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.3
Video Bandwidth	18Gbps
Video Compression Standard	SDVoE
Video Network Bandwidth	10G
Video Resolution	480i ~1080p50/60Hz, 4Kx2K@24/30Hz, 4k2k@60Hz
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit (up to 4K30Hz) 8-bit (4K60Hz)
Audio Formats	LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
L/R Audio Formats	PCM 2.0
SPDIF Audio Formats	LPCM 2.0, LPCM5.1, Dolby Digital 2.0/5.1CH
IR Level	12Vp-p
IR Bandwidth	Wideband 20K - 60KHz
RS-232	Only supports 115200bps
Transmission Distance	MAX: CAT6A/7--100m/328ft; CAT6--55m/180ft
ESD Protection	Human body model — ±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Transmitter	Input: 1 x HDMI IN [Type A, 19-pin female] Output: 1 x HDMI OUT [Type A, 19-pin female] 1 x CAT OUT [RJ45, 8-pin female] 1 x SPDIF OUT [S/PDIF] 1 x L/R OUT [3.5mm Stereo Mini-jack] Control: 1 x IR IN [3.5mm Stereo Mini-jack] 1 x IR OUT [3.5mm Stereo Mini-jack] 1 x RS-232 [3pin-3.81mm Phoenix jack] 1 x SERVICE [Micro USB, 5-pin female] 1 x LAN [RJ45]

Receiver	Input: 1 x CAT IN [RJ45, 8-pin female] 1 x SPDIF IN [S/PDIF] Output: 1 x HDMI OUT [Type A, 19-pin female] 1 x L/R OUT [3.5mm Stereo Mini-jack] Control: 1 x IR IN [3.5mm Stereo Mini-jack] 1 x IR OUT [3.5mm Stereo Mini-jack] 1 x RS-232 [3pin-3.81mm Phoenix jack] 1 x SERVICE [Micro USB, 5-pin female] 1 x LAN [RJ45]		
Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	Transmitter / Receiver: 155mm [W] x 103mm [D] x 21.5mm [H]		
Weight	Transmitter: 440g, Receiver: 436g		
Power Supply	Input: AC 100 - 240V 50/60Hz Output: DC 24V/1A (US/EU standard, CE/FCC/UL certified)		
Power Consumption	21.12W (Full load POC total power consumption)		
Operating Temperature	32 - 104°F / 0 - 40°C		
Storage Temperature	-4 - 140°F / -20 - 60°C		
Relative Humidity	20 - 90% RH (no condensation)		
Resolution / Cable Length	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 - Feet / Meters
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M
The use of "Premium High Speed HDMI" cable is highly recommended.			

5. Operation Controls and Functions

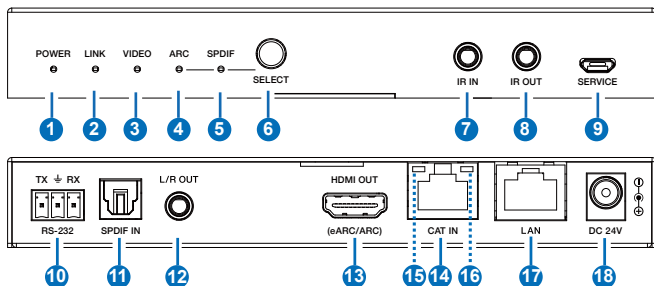
5.1 Transmitter Panel



No.	Name	Function Description
1	POWER LED (Red)	<ul style="list-style-type: none"> Light on: The system is powered on. Light off: The system is powered off.
2	LINK LED (Green)	<ul style="list-style-type: none"> Light on: Transmitter and Receiver are in good connection status. Light off: Transmitter and Receiver are not connected, or the system is powered off.
3	VIDEO LED (Green)	<ul style="list-style-type: none"> Light on: There is video signal input. Light off: There is no video signal input, or the system is powered off.
4	ARC LED (Green)	<ul style="list-style-type: none"> Light on: The device is switched to the ARC mode. Light off: The device is switched to the SPDIF mode, or the system is powered off.
5	SPDIF LED (Green)	<ul style="list-style-type: none"> Light on: The device is switched to the SPDIF mode. Light off: The device is switched to the ARC mode, or the system is powered off.
6	SELECT button	Reverse audio signal selection button, used for switching the ARC mode and SPDIF mode.
7	LOOP OUT/ AUDIO ONLY switch	Switch to left (LOOPOUT), the HDMI OUT port is the loopout port for the HDMI IN port; Switch to right (AUDIO ONLY), the HDMI OUT port outputs 720P black screen image, and the audio is from ARC or SPDIF.
8	IR IN	IR signal input port, connected with IR Receiver cable.

No.	Name	Function Description
9	IR OUT	IR signal output port, connected with IR Blaster cable.
10	SERVICE	Firmware update port.
11	RS-232	Bi-directional RS-232 signal pass-through port (only supports 115200bps).
12	SPDIF OUT	Optical fiber audio output port.
13	L/R OUT	Analog audio output port. It can be used for audio de-embedding.
14	HDMI IN (eARC/ARC)	HDMI signal input port. In video pass-through mode, this port is connected to HDMI source device; In ARC/eARC mode, this port is connected to audio amplifier (supporting eARC/ARC).
15	HDMI OUT	HDMI signal output port. It can choose to be a LOOP OUT or AUDIO ONLY port through the LOOP OUT/AUDIO ONLY switch.
16	CAT OUT	10G BASE-T port, connected to the CAT IN port of Receiver with a CAT6/6A/7 cable. It is used for various signals pass-through.
17	Link Signal Indicator (Green)	<ul style="list-style-type: none"> ▪ Illuminating: Transmitter and Receiver are in good connection status. ▪ Flashing: Transmitter and Receiver are in poor connection status. ▪ Dark: Transmitter and Receiver are not connected.
18	Data Signal Indicator (Orange)	<ul style="list-style-type: none"> ▪ Illuminating: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
19	LAN	Network port, supporting autonomic switching between 100 Mbit/s and Gigabit rate. When this port switches to Gigabit Ethernet, the green indicator lights on and the orange indicator flashes; When this port switches to 100M Ethernet, the green indicator lights off and the orange indicator flashes.
20	DC 24V	DC 24V/1A power input port. <i>Note that the extender supports POC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply.</i>

5.2 Receiver Panel



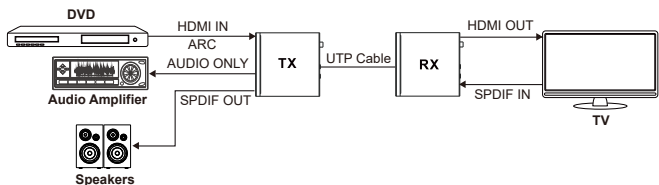
No.	Name	Function Description
1	POWER LED (Red)	<ul style="list-style-type: none"> Light on: The system is powered on. Light off: The system is powered off.
2	LINK LED (Green)	<ul style="list-style-type: none"> Light on: Transmitter and Receiver are in good connection status. Light off: Transmitter and Receiver are not connected, or the system is powered off.
3	VIDEO LED (Green)	<ul style="list-style-type: none"> Light on: There is video signal input. Light off: There is no video signal input, or the system is powered off.
4	ARC LED (Green)	<ul style="list-style-type: none"> Light on: The device is switched to the ARC mode. Light off: The device is switched to the SPDIF mode, or the system is powered off.
5	SPDIF LED (Green)	<ul style="list-style-type: none"> Light on: The device is switched to the SPDIF mode. Light off: The device is switched to the ARC mode, or the system is powered off.
6	SELECT button	Reverse audio signal selection button, used for switching the ARC mode and SPDIF mode.
7	IR IN	IR signal input port, connected with 12V IR Receiver cable.
8	IR OUT	IR signal output port, connected with IR Blaster cable.
9	SERVICE	Firmware update port.
10	RS-232	Bi-directional RS-232 signal pass-through port (only supports 115200bps).
11	SPDIF IN	Optical fiber audio input port.
12	L/R OUT	Analog audio output port, connected to audio amplifier.

No.	Name	Function Description
13	HDMI OUT (eARC/ARC)	In video pass-through mode, this port outputs the video signal from the HDMI IN port of Transmitter; In ARC/eARC mode, this port receives the audio signal returned from the connected display devices.
14	CAT IN	10G BASE-T port, connected to the CAT OUT port of Transmitter with a CAT6/6A/7 cable. It is used for various signals pass-through.
15	Link Signal Indicator (Green)	<ul style="list-style-type: none"> ▪ Illuminating: Transmitter and Receiver are in good connection status. ▪ Flashing: Transmitter and Receiver are in poor connection status. ▪ Dark: Transmitter and Receiver are not connected.
16	Data Signal Indicator (Orange)	<ul style="list-style-type: none"> ▪ Illuminating: HDMI signal with HDCP. ▪ Flashing: HDMI signal without HDCP. ▪ Dark: No HDMI signal.
17	LAN	Network port, supporting autonomic switching between 100 Mbit/s and Gigabit rate. When this port switches to Gigabit Ethernet, the green indicator lights on and the orange indicator flashes; When this port switches to 100M Ethernet, the green indicator lights off and the orange indicator flashes.
18	DC 24V	DC 24V/1A power input port. <i>Note that the extender supports POC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply.</i>

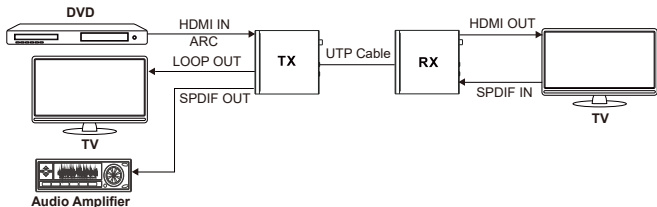
5.3 Input & Output Switching

The Extender can switch to ARC/SPDIF mode by pressing the SELECT button on the front panel of both transmitter and receiver. The HDMI OUT port of the transmitter can turn to LOOP OUT or AUDIO ONLY through the LOOP OUT/AUDIO ONLY switch. The input and output routing are different for different scenarios, as shown in the diagrams below:

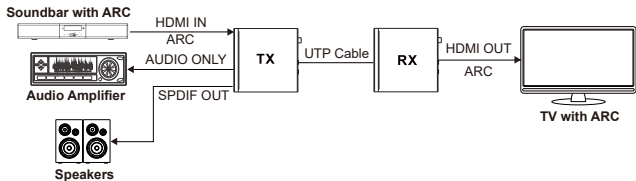
Scene 1: Set the Extender to SPDIF Mode. Then switch the LOOP OUT/ AUDIO ONLY switch to right, the HDMI OUT port of the transmitter is set to AUDIO ONLY.



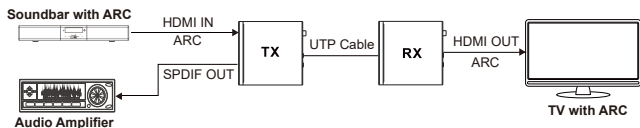
Scene 2: Set the Extender to SPDIF Mode. Then switch the LOOP OUT/ AUDIO ONLY switch to left, the HDMI OUT port of the transmitter is set to LOOP OUT.



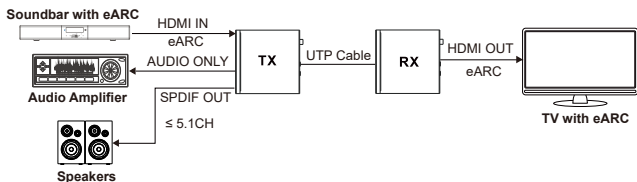
Scene 3: Set the Extender to ARC Mode. Then switch the LOOP OUT/ AUDIO ONLY switch to right, the HDMI OUT port of the transmitter is set to AUDIO ONLY.



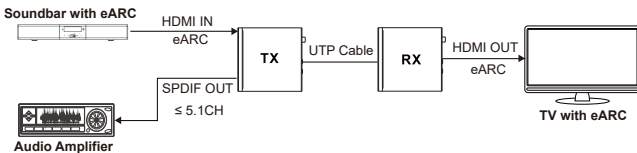
Scene 4: Set the Extender to ARC Mode. Then switch the LOOP OUT/ AUDIO ONLY switch to left, the HDMI OUT port of the transmitter is set to LOOP OUT.



Scene 5: Set the Extender to eARC Mode. Then switch the LOOP OUT/ AUDIO ONLY switch to right, the HDMI OUT port of the transmitter is set to AUDIO ONLY.



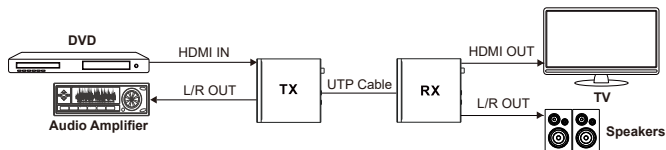
Scene 6: Set the Extender to eARC Mode. Then switch the LOOP OUT/ AUDIO ONLY switch to left, the HDMI OUT port of the transmitter is set to LOOP OUT.



Note: In eARC mode, the SPDIF OUT port can only output the audio up to 5.1CH.

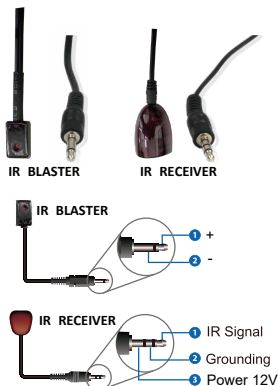
5.4 Audio De-embedding

Both the transmitter and receiver support audio de-embedding function. In video pass-through mode, the TX's L/R OUT port outputs the audio signal de-embedded from the TX's HDMI IN port, and the RX's L/R OUT port outputs the audio signal de-embedded from the RX's HDMI OUT port.



5.5 IR Pin Definition

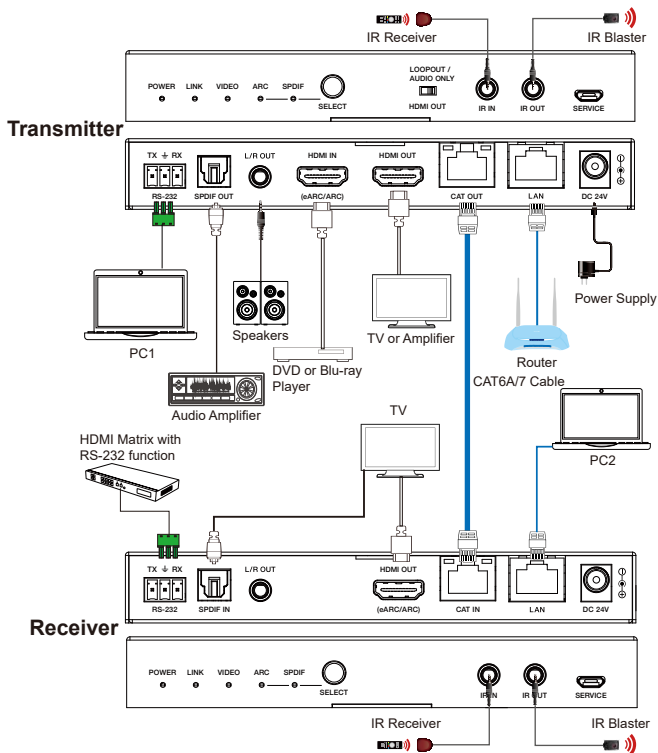
IR Receiver and Blaster pin's definition as below:



Note: When the angle between the IR receiver and the remote control is $\pm 45^\circ$, the transmission distance is 0-5 meters; when the angle between the IR receiver and the remote control is $\pm 90^\circ$, the transmission distance is 0-8 meters.

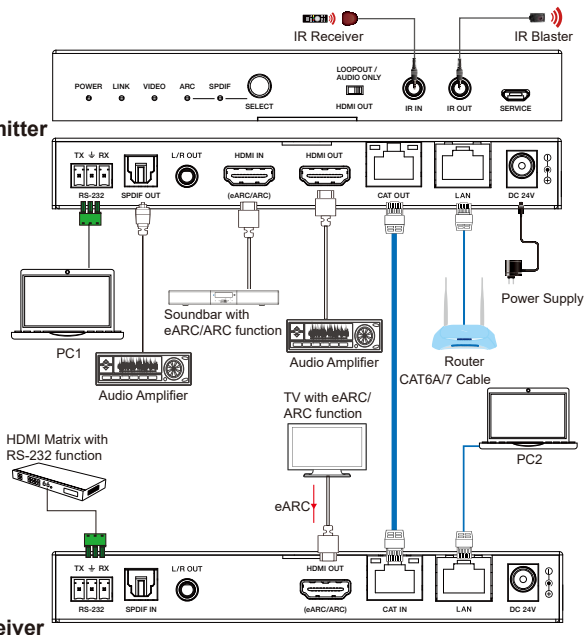
6. Application Example

Mode 1: Video Pass-through Mode



Mode 2: eARC/ARC Mode

Transmitter



Receiver



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