

HDBaseT 3.0 Extender with eARC/ARC (100m)



Operating Instructions

Version 1.0

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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1.0 Introduction

This HDBaseT 3.0 Extender extends uncompressed HD/UHD video and audio signals, eARC/ARC, RS-232, bi-directional IR, 1G Ethernet and USB 2.0 signals up to 100m/328ft via a single CAT6A/7 cable. The Transmitter supports audio embedding or de-embedding. The Receiver supports audio de-embedding. It also supports eARC/ARC from RX's HDMI output pass through to TX's HDMI input or de-embedding to TX's HDMI audio only and SPDIF output ports, USB 2.0 (Host/Device is configurable) and bi-directional POC.

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 applications.

2.0 Features

- HDMI 2.0b, HDCP 2.2 and HDBaseT 3.0 compliant
- Uncompressed 4K@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
- Transmission distance up to 328ft/100 meters via a single CAT 6A/7 cable
- Supports eARC/ARC function (the audio is returned to the HDMI IN port,
- HDMI OUT(AUDIO ONLY) port and SPDIF OUT port of the transmitter.)
- Supports SPDIF audio reverse transmission
- Bi-directional IR, RS-232 and 1G Ethernet signal pass through
- Supports USB 2.0 transmission, Host/Device is configurable
- Bi-directional 24V PoC function

3.0 Package Contents

- 1 x HDBaseT 3.0 Extender (Transmitter)
- 1 x HDBaseT 3.0 Extender (Receiver)
- 1 x IR Blaster Cable (1.5m)
- 1 x IR Receiver Cable (1.5m)
- 4 x Mounting Ears
- 2 x 3-Pin Phoenix Terminals
- 1 x 24V/1A Power Adaptor

4.0 Specifications

Technical		
HDMI Compliance	HDMI 2.0b	
HDCP Compliance	HDCP 2.2	
Video Bandwidth	18Gbps	
Video Resolution	Up to 4K@60Hz 4:4:4	
HDBaseT Bandwidth	16Gbps on main and 2Gbps on return link	
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG	
Colour Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0	
Colour Depth	8/10/12-bit	
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, AC3 5.1, DTS 5.1	
IR Level	12V p-p	
IR Bandwidth	20K - 60KHz	
USB Bandwidth	Up to 350Mbps	
Ethernet	1000Mbps	
RS232	Up to 921600bps	
Transmission Distance	100m (via a single CAT6a/7 cable)	
ESD Protection	Human Body Example - +/-8kV (air gab discharge) & +/-4kV (contact discharge)	
Connections		
Transmitter	Inputs	1 x HDMI (Type-A, 19-Pin Female)
		1 x HDMI (Type-A, 19-Pin Female)
	Outputs	1 x HDBaseT (RJ45 Data Socket)
		1 x Optical (SPDIF)
		1 x Stereo Audio (3.5mm Jack Socket)
		1 x IR Input (3.5mm Jack Socket)
	Controls	1 x IR Output (3.5mm Jack Socket)
		1 x Service Port (mini USB)
		1 x USB Host (Type-B)
		2 x USB Devices (Type-A)
		1 x 1G Ethernet (RJ45 Data Socket)
		1 x RS232 (3-Pin Phoenix Terminal)
Receiver	Inputs	1 x HDBaseT (RJ45 Data Socket)
		1 x Optical (SPDIF)
	Outputs	1 x HDMI (Type-A, 19-Pin Female)
		1 x Stereo Audio (3.5mm Jack Socket)
	Controls	1 x IR Input (3.5mm Jack Socket)
		1 x IR Output (3.5mm Jack Socket)
		1 x Service Port (mini USB)
		1 x USB Host (Type-B)
		2 x USB Devices (Type-A)
		1 x 1G Ethernet (RJ45 Data Socket)
	1 x RS232 (3-Pin Phoenix Terminal)	

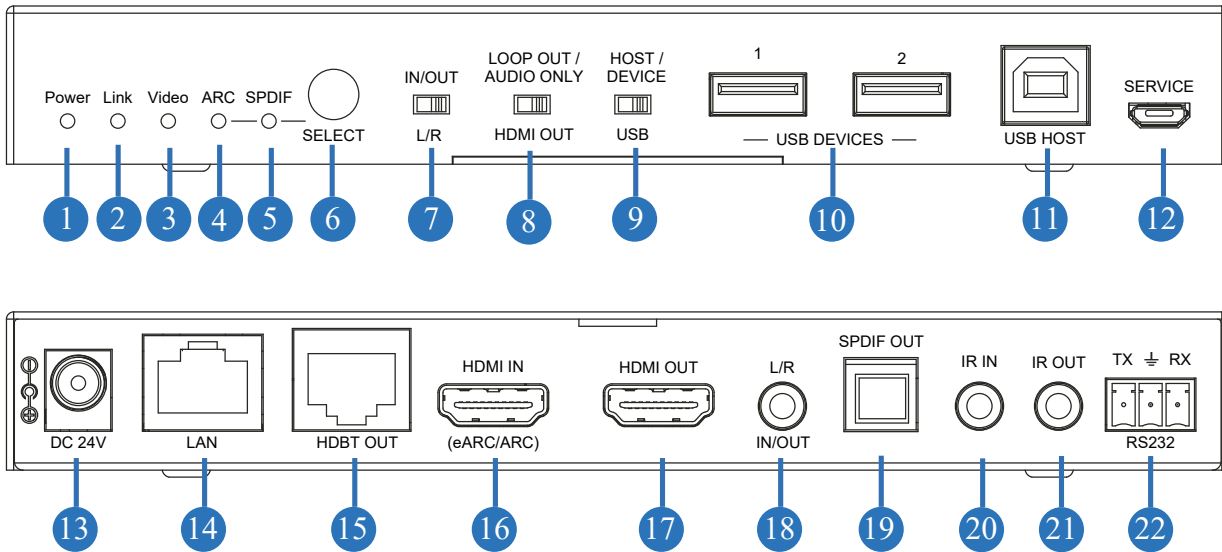
4.0 Specifications (cont.....)

Mechanical		
Housing	Metal Enclosure	
Colour	Black	
Dimensions	Transmitter	(W) 170 x (D) 102 x (H) 22mm
	Receiver	(W) 170 x (D) 102 x (H) 22mm
Weight	Transmitter	425g
	Receiver	437g
Power Supply	Input	AC 100 - 240V 50/60Hz
	Output	DC 24V / 1A (US/EU standard, (CE/FCC/UL)
	Consumption	15.36W (PoC)
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 Lengths	4K60 - Feet / Meters	4K30 - Feet / Meters	1080P60 = Feet / Meters
HDMI In / Out	16 Feet / 5 meters	32 Feet / 10 Meters	50 Feet / 15 Meters
The use of "Premium High Speed HDMI" Cables is highly recommended.			

5.0 Controls and Functions

5.1 Transmitter Panel

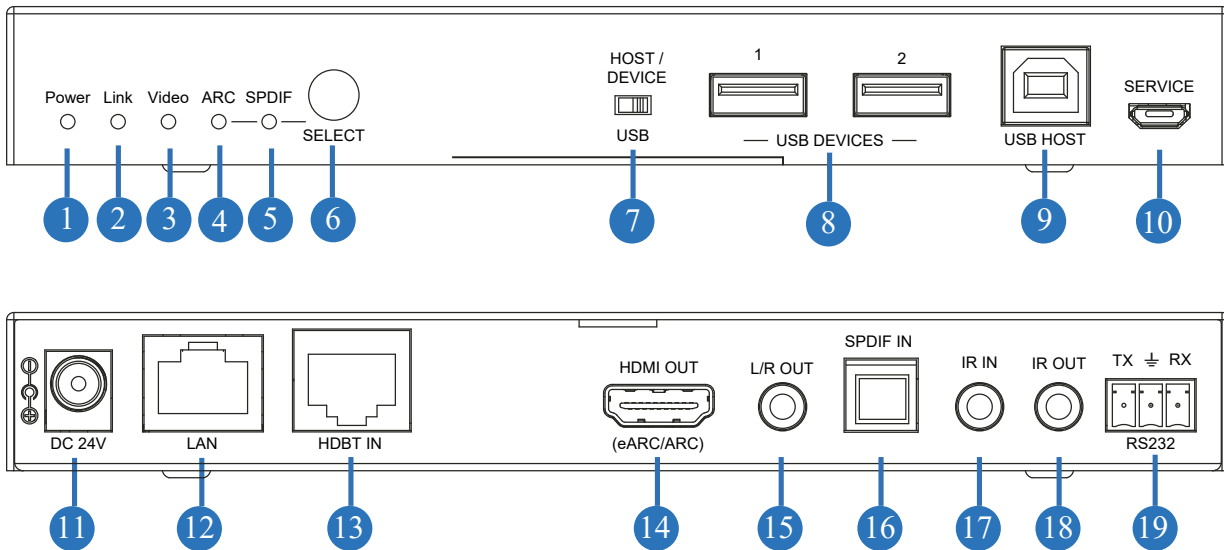


No.	Name	Function / Description
1	Power LED	Red LED illuminates when the transmitter is power on
2	Link LED	● On: Transmitter and Receiver are connected successfully
		● Flashing: Transmitter and Receiver are in low power mode
		● Off: Transmitter and Receiver are not connected
3	Video LED	● On: The video signal is encrypted
		● Flashing: The video signal is not encrypted
		● Off: No HDMI input
4	ARC LED	● On: ARC is enabled
		● Off: SPDIF is enabled
5	SPDIF LED	● On: SPDIF is enabled
		● Off: ARC is enabled
6	Select Button	Switches between ARC and SPDIF
7	L/R In/Out Switch	Move to the left for L/R IN/OUT audio Embedding
		Move to the Right for L/R IN/OUT audio De-Embedding
8	Loop Out / Audio Only	Switch to the left (Loop Out), the HDMI OUT port is the looped port of the HDMI IN port.
		Switch to the right (Audio Only), the HDMI OUT port outputs 720P black screen image and the audio is from ARC or SPDIF
9	Host / Devices USB Switch	Switch to the left (HOST), to enable USB host Switch to the right (DEVICE) to enable USB devices.
10	USB Devices	Connects to USB devices such as a keyboard and mouse
11	USB Host	Connects to a USB host device such as PC

5.1 Transmitter Panel Continued...

No.	Name	Function / Description
12	Service	Firmware updates only
13	DC 24V	DC 24 Volt @ 1 Amp Note: Both transmitter and receiver support PoC (power over cable) and therefore only one end requires power
14	LAN	1G Ethernet port
15	HDBT Out	10G port for connecting to the receiver using a single CAT6a/7 cable
16	HDMI In	Connects to signal device and supports eARC and ARC
17	HDMI Out	HDMI looped output or audio only depending on switch position
18	L/R In and Out	Embedded or De-Embedded audio depending on switch position
19	SPDIF Out	Fibre Optic output
20	IR Input	Connect the IR Receiver cable for sending IR signals to the receiver
21	IR Output	Connect the IR Blaster cable for receiving IR signals from the receiver
22	RS-232	Full duplex RS232 pass-through

5.2 Receiver Panel



No.	Name	Function / Description
1	Power LED	Red LED illuminates when the transmitter is power on
2	Link LED	● On: Transmitter and Receiver are connected successfully
		● Flashing: Transmitter and Receiver are in low power mode
		● Off: Transmitter and Receiver are not connected
3	Video LED	● On: The video signal is encrypted
		● Flashing: The video signal is not encrypted
		● Off: No HDMI input
4	ARC LED	● On: ARC is enabled
		● Off: SPDIF is enabled
5	SPDIF LED	● On: SPDIF is enabled
		● Off: ARC is enabled
6	Select Button	Switches between ARC and SPDIF
7	Host / Devices USB Switch	Switch to the left (HOST), to enable USB host Switch to the right (DEVICE) to enable USB devices.
8	USB Devices	Connects to USB devices such as a keyboard and mouse
9	USB Host	Connects to a USB host device such as PC
10	Service	Firmware updates only
11	DC 24V	DC 24 Volt @ 1 Amp Note: Both transmitter and receiver support PoC (power over cable) and therefore only one end requires power
12	LAN	1G Ethernet Port

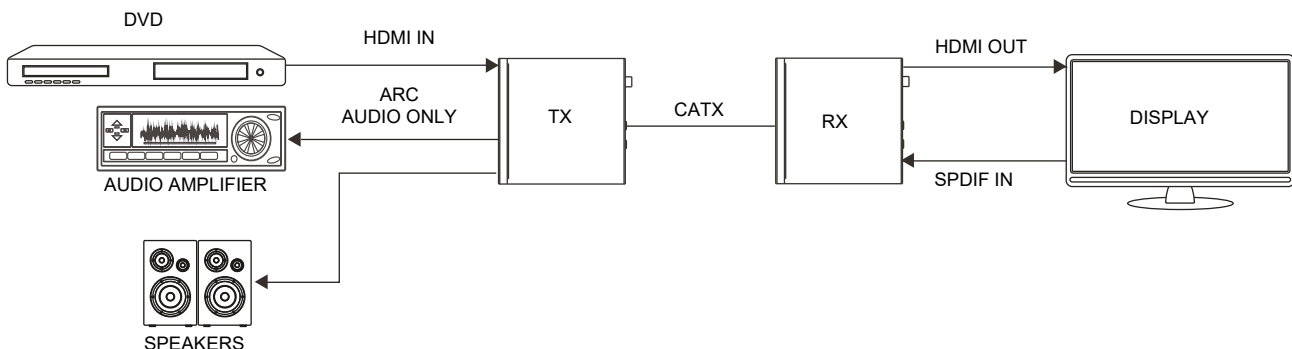
5.2 Receiver Panel Continued...

No.	Name	Function / Description
13	HDBT In	10G port for connecting to the transmitter using a single CAT6a/7 cable
14	HDMI Out	Connects to display device and supports eARC and ARC
15	L/R Out	De-Embedded audio
16	SPDIF In	Fibre Optic input
17	IR Input	Connect the IR Receiver cable for sending IR signals to the transmitter
18	IR Output	Connect the IR Blaster cable for receiving IR signals from the transmitter
19	RS-232	Full duplex RS232 pass-through

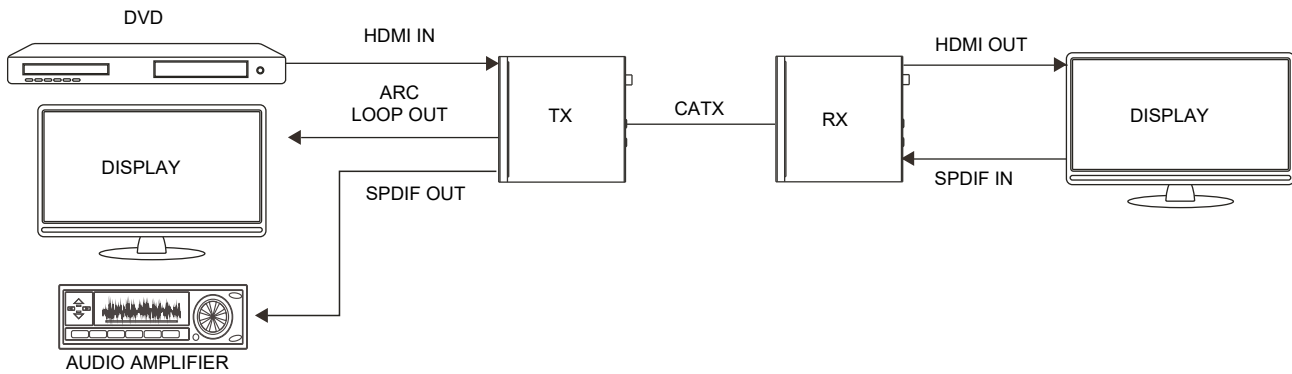
5.3 Input and Output Switching

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:

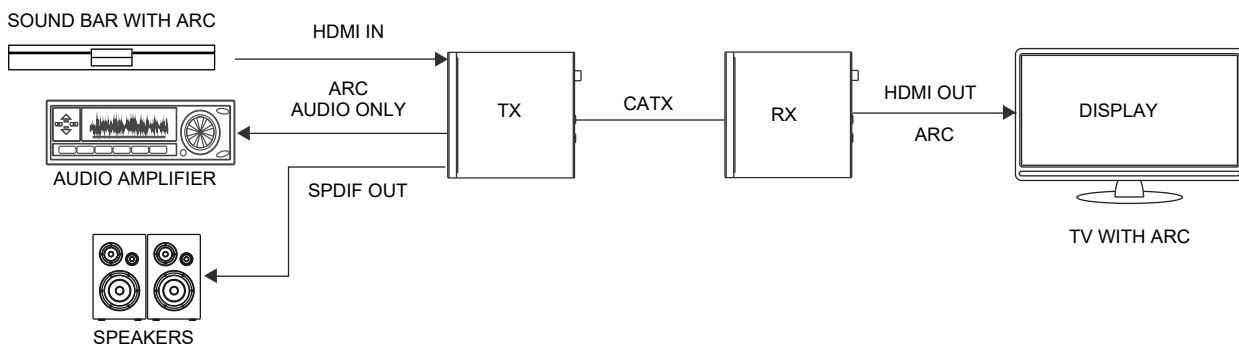
Scenario 1: Set the Extender to SPDIF Mode. Then switch the LOOP OUT/AUDIO ONLY switch to right, the HDMI OUT port of the transmitter is set to AUDIO ONLY.



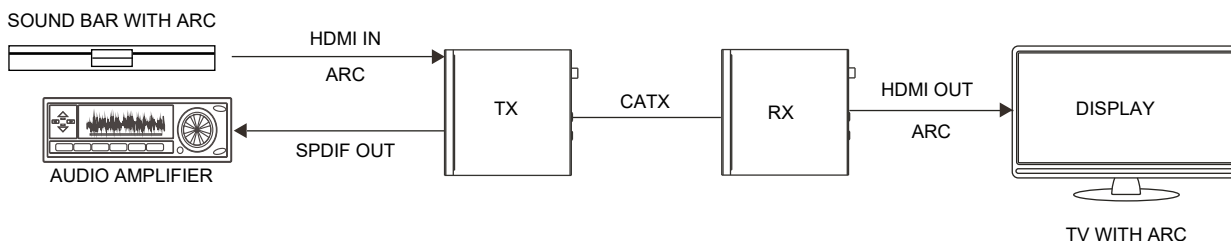
Scenario 2: Set the Extender to SPDIF Mode. Then switch the LOOP OUT/AUDIO ONLY switch to the left, the HDMI OUT port of the transmitter is set to LOOP OUT.



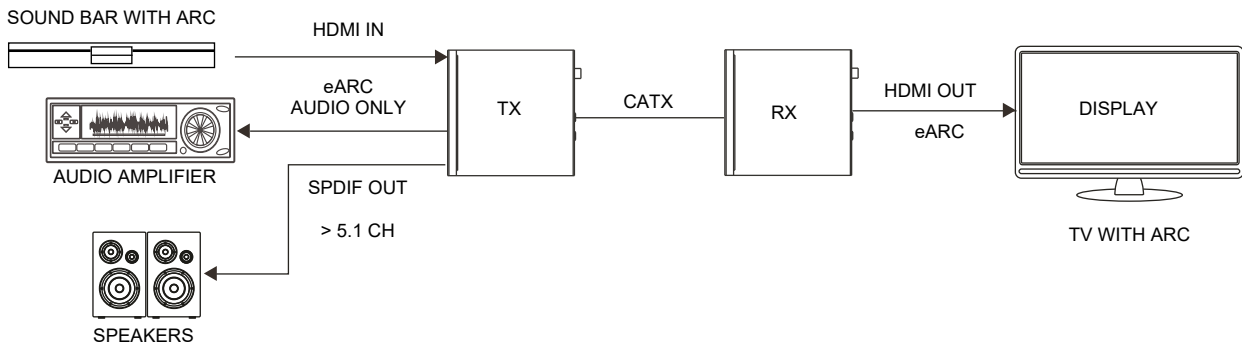
Scenario 3: Set the Extender to ARC Mode. Then switch the LOOP OUT/AUDIO ONLY switch to the right, the HDMI OUT port of the transmitter is set to AUDIO ONLY.



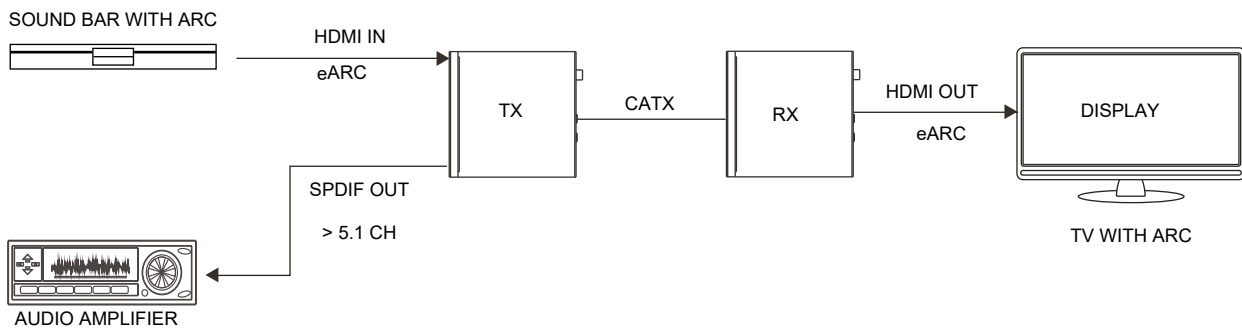
Scenario 4: Set the Extender to ARC Mode. Then switch the LOOP OUT/AUDIO ONLY switch to the left, the HDMI OUT port of the transmitter is set to LOOP OUT.



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



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

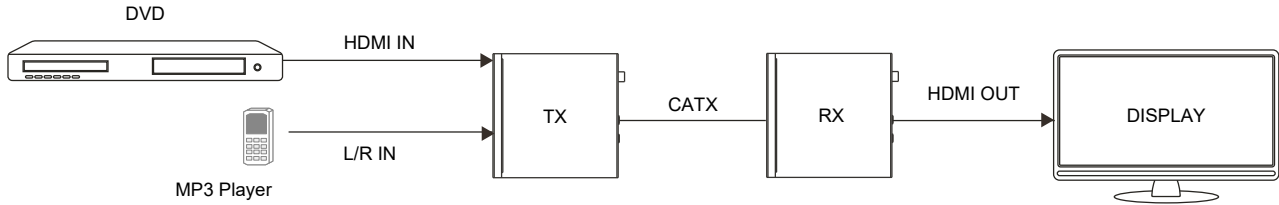


NOTE: In eARC mode the SPDIF output only supports up to 5.1 CH audio.

5.4 Audio Embedding and De-Embedding

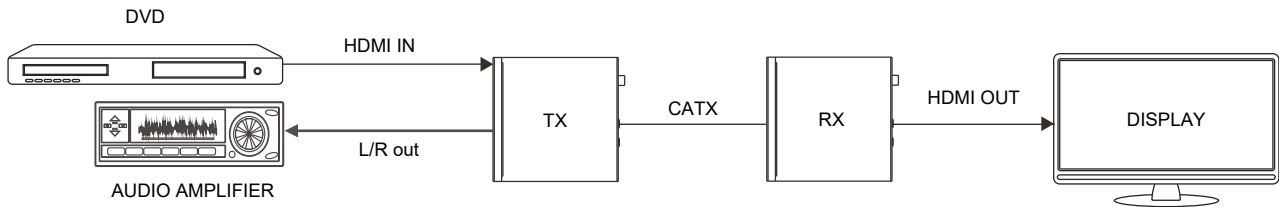
Transmitter Audio Embedding

When the L/R IN/OUT switch is in the left position, the audio from external audio device will be embedded to the L/R IN/OUT port.



Transmitter Audio De-Embedding

When the L/R IN/OUT switch is in the right position, the L/R IN/OUT port will output the de-embedded audio from the HDMI IN port.



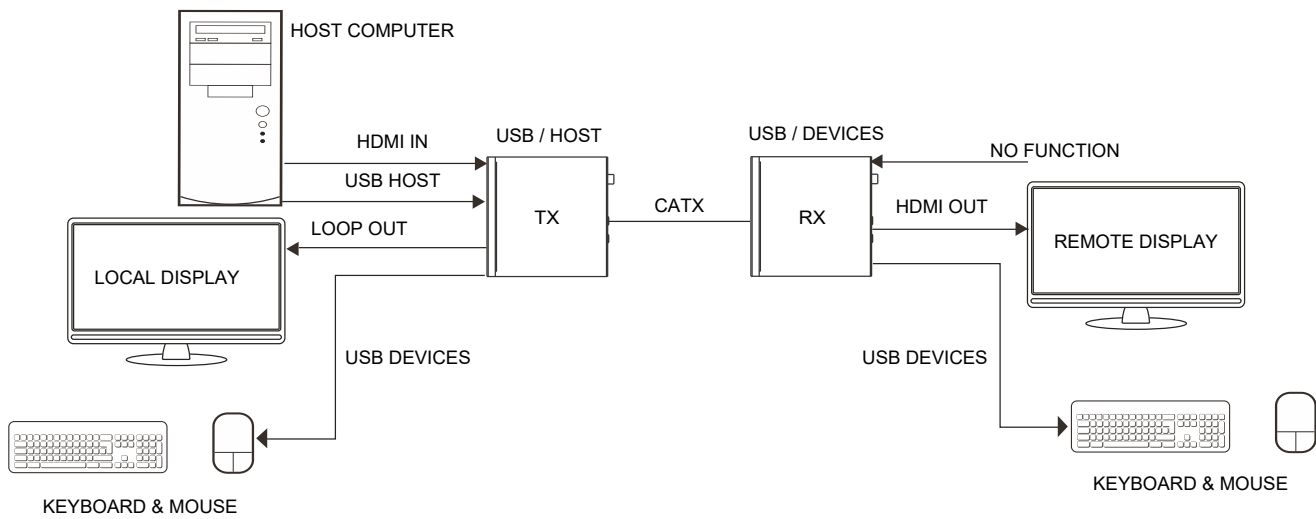
5.5 USB Applications

The extender supports USB 2.0 transmission and the Host/Device is configurable.

Mode 1. USB sent from the Transmitter to Receiver

Transmitter - Switch the HOST/DEVICE USB switch to the left, then power off and reboot the Transmitter to enable the USB Host mode.

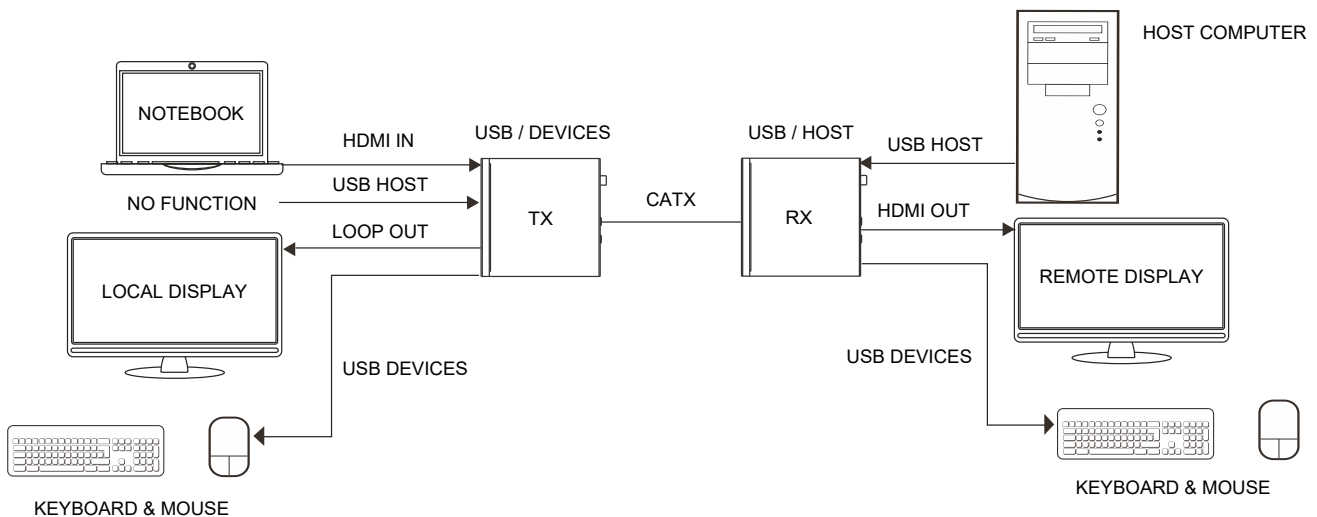
Receiver- Switch the DEVICE/HOST switch to the left, then power off and reboot the Receiver to enable USB Device mode.



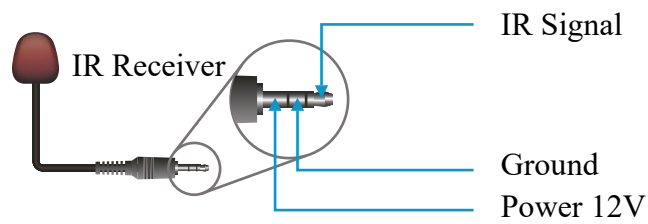
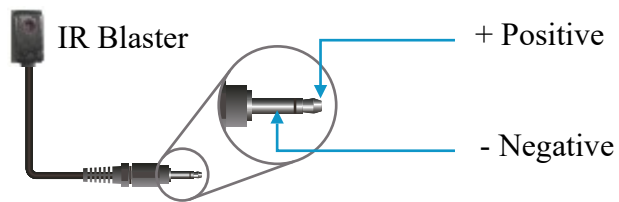
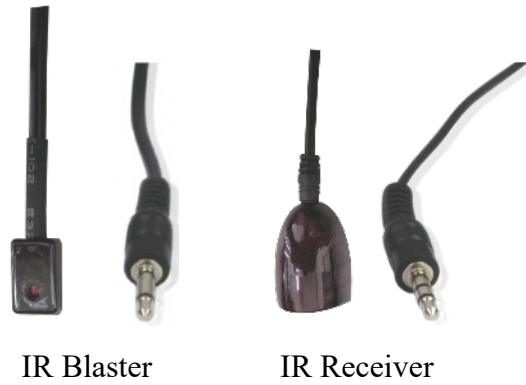
Mode 2. USB sent from the Receiver to Transmitter

Transmitter - Switch the HOST/DEVICE USB switch to the right, then power off and reboot the Transmitter to enable the USB Host mode.

Receiver- Switch the DEVICE/HOST switch to the right, then power off and reboot the Receiver to enable USB Device mode.



5.6 IR Pin Connections



Note: When the angle between the IR receiver and the remote control is +/- 45 degrees, the transmission distance is 0-5 meters. When the angle between the IR receiver and the remote control is +/- 90 degrees, the transmission distance is 0-8 meters.

6.0 Application Drawing

