4K HDMI/eARC HDBaseT 3.0 Transmitter (100m) with USB 2.0 & Ethernet

Extend 4K60 Video, eARC Audio Return, USB KVM & Gigabit Ethernet over a Single CAT6A Cable — 328ft

Bridges the gap between modern eARC-enabled displays and distributed AV systems by extending uncompressed 4K60 4:4:4 video, multi-format audio, USB 2.0, and Gigabit Ethernet up to 328 ft over a single CAT6A cable. The EXT-HDBT3ARC-TX transmitter leverages HDBaseT 3.0 to deliver 18 Gbps of uncompressed bandwidth alongside full eARC/ARC audio return, bi-directional IR and RS-232 control, and configurable USB Host/Device mode — all through one network cable run.

Video passes through at full 4K@60Hz 4:4:4 with HDR10, HDR10+, Dolby Vision, and HLG intact, while the eARC path returns lossless Dolby TrueHD and DTS-HD Master Audio from the display back to the transmitter's HDMI, analog L/R, or SPDIF output. Bi-directional 24 V POC eliminates the need for a second power supply at the remote end, and the built-in Gigabit Ethernet port lets integrators consolidate AV transport and network infrastructure on a single cable.

Surge Protection Recommended — This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, or lightning strikes. Use of surge protection systems is highly recommended.

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FEATURES

- ✓ HDMI 2.0b and HDCP 2.2 compliant with HDBaseT 3.0 standard for uncompressed signal transmission
- ✓ Uncompressed 4K@60Hz 4:4:4 video with up to 18Gbps video bandwidth over a single CAT6A/7 cable
- ✓ HDR pass-through including HDR, HDR10, HDR10+, Dolby Vision, and HLG formats
- ✓ Full audio format support: LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, and DSD
- ✓ Transmission distance up to 100 meters (328 feet) via a single CAT 6A/7 cable
- ✓ eARC/ARC audio return channel support — audio returns to the HDMI IN port, HDMI OUT (Audio Only) port, and SPDIF OUT port
- ✓ SPDIF audio reverse transmission for legacy audio equipment integration
- ✓ Bi-directional IR, RS-232, and Gigabit Ethernet (1000Mbps) signal pass-through for full system control
- ✓ USB 2.0 transmission with configurable Host/Device mode for KVM or peripheral extension
- ✓ Bi-directional 24V POC — either transmitter or receiver powers the other unit
- ✓ Audio embedding and de-embedding via L/R analog port with front-panel switch selection
- ✓ HDMI loopout or Audio Only output mode selectable via front-panel switch

PACKAGE CONTENTS

1× EXT-HDBT3ARC-TX Transmitter • 1× IR Blaster Cable (1.5m) • 1× IR Receiver Cable (1.5m) • 2× 3-pin 3.81mm Phoenix Connectors • 4× Mounting Ears • 8× Machine Screws (KM3×4) • 1× 24V/1A Locking Power Supply • 1× User Manual

Specifications

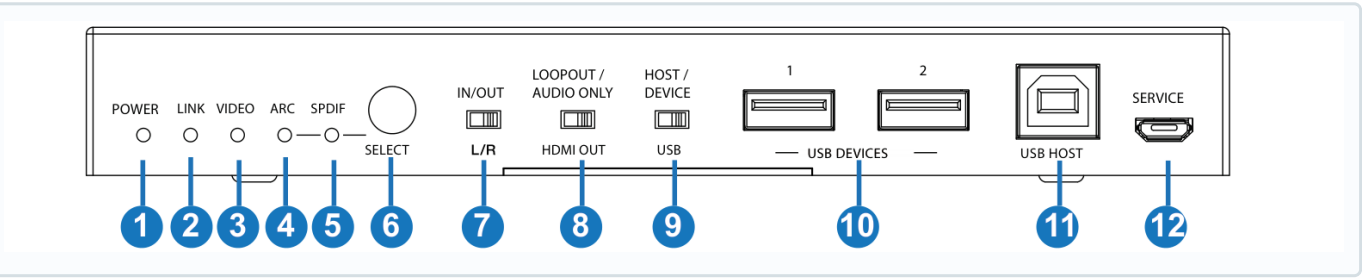
TECHNICAL	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution	Up to 4K@60Hz 4:4:4
HDBaseT Bandwidth	16Gbps on main link, 2Gbps on return link
HDR	HDR, HDR10, HDR10+, Dolby Vision, HLG
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit
Audio Formats	LPCM, Dolby Digital/Plus/EX, Dolby TrueHD, 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	12Vp-p
IR Bandwidth	20K–60KHz
USB Bandwidth	Up to 350Mbps
Ethernet	1000Mbps (Gigabit)
RS-232	Up to 921600bps
ESD Protection	Human body model — ±8kV (Air-gap discharge) & ±4kV (Contact discharge)

CONNECTION (TRANSMITTER)	
HDMI Input	1× HDMI IN [Type A, 19-pin female]
HDMI Output	1× HDMI OUT [Type A, 19-pin female]
HDBaseT Output	1× HDBT OUT [RJ45, 8-pin female]
SPDIF Output	1× SPDIF OUT [S/PDIF]
L/R Audio	1× L/R IN/OUT [3.5mm Stereo Mini-jack]
IR Input	1× IR IN [3.5mm Stereo Mini-jack]
IR Output	1× IR OUT [3.5mm Stereo Mini-jack]
RS-232	1× RS-232 [3-pin 3.81mm Phoenix jack]
Service Port	1× SERVICE [Mini-USB, firmware update]
USB Host	1× USB HOST [USB Type B]
USB Devices	2× USB DEVICES [USB Type A]
LAN	1× LAN [RJ45, Gigabit Ethernet]

MECHANICAL	
Transmission Distance	100m / 328ft via a single CAT 6A/7 cable
Power Supply	DC 24V/1A (locking connector)
POC	Bi-directional 24V POC — either TX or RX powers the other unit

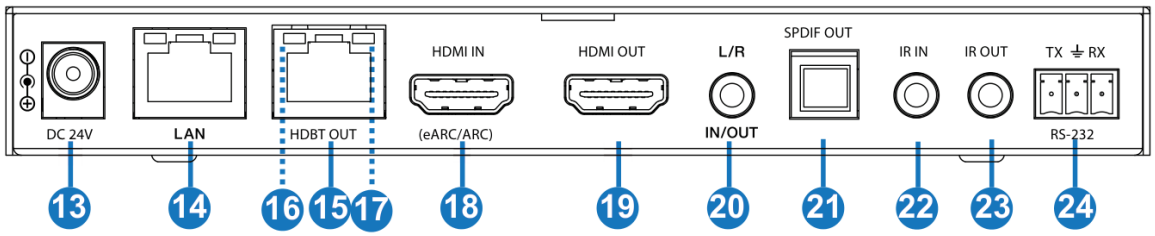
Operation Controls and Functions

5.1 TRANSMITTER PANEL — FRONT



No.	Name	Function Description
1	**Power LED**	Red LED indicates that the transmitter is powered on.
2	**LINK LED**	Light on: TX and RX are connected. Flashing: Low Power Mode. Off: Not connected.
3	**VIDEO LED**	Light on: Video is encrypted (HDCP). Flashing: Video without HDCP. Off: No HDMI input.
4	**ARC LED**	Light on: ARC mode active. Off: SPDIF mode active.
5	**SPDIF LED**	Light on: SPDIF mode active. Off: ARC mode active.
6	**SELECT Button**	Switches between ARC mode and SPDIF mode.
7	**L/R IN/OUT Switch**	Left: L/R port is audio embedding input. Right: L/R port is audio de-embedding output.
8	**LOOPOUT / AUDIO ONLY Switch**	Left (LOOPOUT): HDMI OUT mirrors HDMI IN. Right (AUDIO ONLY): HDMI OUT outputs 720p black screen with ARC/SPDIF audio.
9	**HOST / DEVICE USB Switch**	Left (HOST): USB Host mode. Right (DEVICE): USB Device mode.
10	**USB DEVICES**	Two USB Type A ports for connecting keyboard, mouse, or USB storage.
11	**USB HOST**	USB Type B extension host port, connected to PC.
12	**SERVICE**	Mini-USB firmware update port.

5.1 TRANSMITTER PANEL — REAR



No.	Name	Function Description
13	**DC 24V**	DC 24V/1A power supply input. Supports POC — either TX or RX can be powered, the other unit receives power over the CAT cable.
14	**LAN**	Gigabit Ethernet port. Green indicator: Gigabit connection. Yellow indicator: 100M connection.
15	**HDBT OUT**	10G network port connected to the Receiver via CAT 6A/7 cable for all signal pass-through.
16	**Data Signal Indicator**	Yellow LED. Illuminating: HDMI signal with HDCP. Flashing: HDMI without HDCP. Dark: No HDMI signal.
17	**Link Signal Indicator**	Green LED. Illuminating: Good connection. Flashing: Poor connection. Dark: Not connected.
18	**HDMI IN**	HDMI signal input port connected to source device. Supports eARC/ARC.
19	**HDMI OUT**	HDMI signal loopout port. Can be set to LOOPOUT or AUDIO ONLY via the front-panel switch.
20	**L/R IN/OUT**	3.5mm audio embedding/de-embedding port, configurable via the front-panel L/R switch.
21	**SPDIF OUT**	Optical audio output port.
22	**IR IN**	IR signal input port. Connect IR Receiver cable.
23	**IR OUT**	IR signal output port. Connect IR Blaster cable.
24	**RS-232**	RS-232 serial port (3-pin 3.81mm Phoenix) for command transmission.

Input & Output Switching

The extender can switch between ARC, SPDIF, and eARC modes by pressing the SELECT button on the front panel. The HDMI OUT port of the transmitter can be set to LOOPOUT or AUDIO ONLY via the front-panel switch. The input and output routing varies by scenario:

Scene 1: SPDIF Mode + AUDIO ONLY

HDMI IN → HDBT OUT (to Receiver). HDMI OUT outputs audio-only (720p black screen). SPDIF OUT sends audio to an external amplifier. The Receiver's HDMI OUT delivers video and SPDIF IN receives audio.

Scene 2: SPDIF Mode + LOOPOUT

HDMI IN → HDBT OUT (to Receiver) and HDMI OUT (loopout to a local monitor). SPDIF OUT sends audio to an external amplifier.

Scene 3: ARC Mode + AUDIO ONLY

HDMI IN receives ARC audio from a connected soundbar or ARC source. HDMI OUT outputs audio-only. SPDIF OUT sends ARC audio to an external amplifier. The Receiver's HDMI OUT connects to an ARC-enabled TV.

Scene 4: ARC Mode + LOOPOUT

HDMI IN receives ARC audio. HDMI OUT loops out the signal to a local monitor. SPDIF OUT sends ARC audio to an external amplifier. The Receiver connects to an ARC-enabled TV.

Scene 5: eARC Mode + AUDIO ONLY

HDMI IN receives eARC audio from an eARC-enabled soundbar. HDMI OUT outputs audio-only. SPDIF OUT supports up to 5.1CH audio. The Receiver connects to an eARC-enabled TV.

Scene 6: eARC Mode + LOOPOUT

HDMI IN receives eARC audio. HDMI OUT loops out the signal. SPDIF OUT supports up to 5.1CH. Note: In eARC mode, the SPDIF OUT port can only output audio up to 5.1CH.

SWITCHING MODE SUMMARY

Scene	Mode	HDMI OUT	SPDIF OUT	Use Case
1	SPDIF	Audio Only (720p black)	SPDIF audio from source	De-embed audio to amplifier; no local display
2	SPDIF	Loopout (mirror)	SPDIF audio from source	Local monitor + audio de-embedding
3	ARC	Audio Only	ARC return audio	Extract TV return audio to amplifier via ARC
4	ARC	Loopout	ARC return audio	Local monitor + ARC audio extraction
5	eARC	Audio Only	eARC audio (≤5.1CH)	Lossless audio return from eARC TV
6	eARC	Loopout	eARC audio (≤5.1CH)	Local monitor + eARC lossless audio

Audio Embedding & De-embedding

The transmitter supports audio embedding and de-embedding via the L/R IN/OUT port on the rear panel. The function is controlled by the L/R IN/OUT switch on the front panel.

TX AUDIO EMBEDDING

When the L/R IN/OUT switch is set to the **left** position, the L/R port acts as an audio **input**. Audio from an external device (e.g., MP3 player, microphone preamp) is embedded into the HDMI stream and transmitted to the Receiver along with the video signal.

TX AUDIO DE-EMBEDDING

When the L/R IN/OUT switch is set to the **right** position, the L/R port acts as an audio **output**. Stereo audio is de-embedded from the HDMI IN source and output through the L/R port to an external amplifier or powered speakers.

USB Mode Applications

The extender supports USB 2.0 transmission with configurable Host/Device mode. After changing the USB switch position, power-cycle the unit to apply the new mode.

MODE 1: USB FORWARD (TX → RX)

TX USB switch set to **HOST** (left). RX USB switch set to **DEVICE** (left). The PC connected to the TX USB HOST port controls peripherals (keyboard, mouse, USB storage) connected to both the TX and RX USB DEVICES ports. The RX USB HOST port has no function in this mode.

MODE 2: USB REVERSE (RX → TX)

TX USB switch set to **DEVICE** (right). RX USB switch set to **HOST** (right). The PC connected to the RX USB HOST port controls peripherals connected to both the TX and RX USB DEVICES ports. The TX USB HOST port has no function in this mode.

IR Pin Definition

The IR Receiver and IR Blaster cables use 3.5mm stereo mini-jack connectors with the following pin assignments:

Cable	Tip	Ring	Sleeve
IR Blaster	IR signal (+)	Not connected	Ground (–)
IR Receiver	IR signal (+)	Power (12V)	Ground (–)

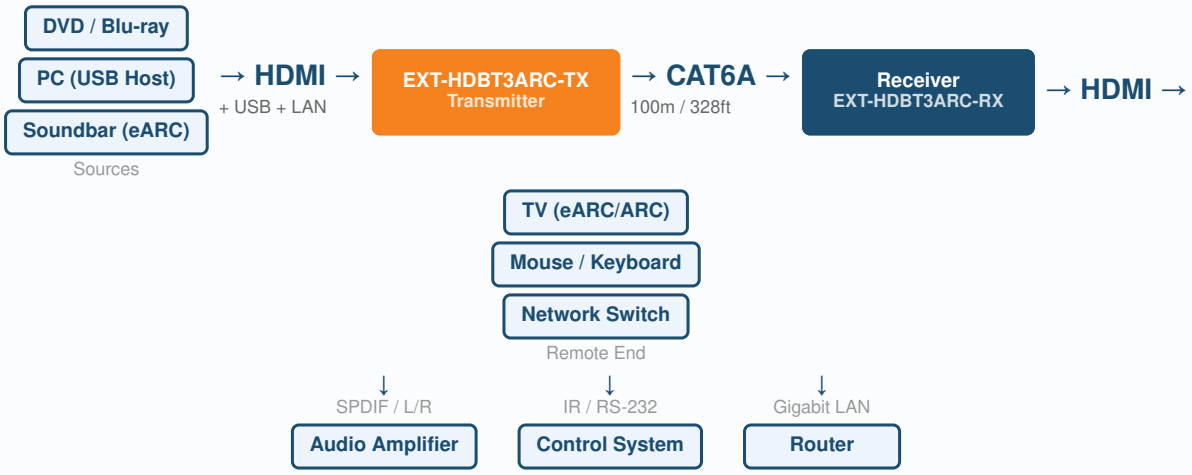
Note: When the angle between the IR receiver and the remote control is ±45°, the transmission distance is 0–5 meters. When the angle is ±90°, the transmission distance extends to 0–8 meters.

DEFAULT SETTINGS

Parameter	Default Value
Audio Mode	SPDIF (SELECT button toggles ARC/eARC)
HDMI OUT Mode	LOOPOUT (switch left)
L/R IN/OUT Mode	Audio Embedding (switch left)
USB Mode	HOST (switch left)
POC	Enabled — either TX or RX may power the other

Application Example

HDBaseT 3.0 Extension with eARC, USB & Ethernet



How it works: Connect sources (Blu-ray, PC, soundbar) to the Transmitter via HDMI, USB, and LAN. A single CAT 6A/7 cable carries 4K60 4:4:4 video, eARC/ARC audio return, USB 2.0, Gigabit Ethernet, bi-directional IR, and RS-232 up to 100 meters to the Receiver. The Receiver outputs to a TV or display with eARC audio return, while USB peripherals (keyboard, mouse) at the remote end are routed back to the source PC. Bi-directional 24V POC means only one end needs a power supply.
Audio return: eARC/ARC audio from the Receiver's TV is returned through the CAT cable to the Transmitter's HDMI IN, SPDIF OUT, or L/R output for connection to an amplifier or soundbar.
Control: Bi-directional IR and RS-232 pass-through enables centralized room control from either end.

TROUBLESHOOTING

Q: No video on the remote display?
A: Verify the CAT 6A/7 cable is connected to HDBT OUT on the Transmitter and HDBT IN on the Receiver. Confirm the source is outputting a signal (check HDMI IN). Ensure the cable run does not exceed 100 meters and that the cable is CAT 6A or CAT 7 rated.

Q: No eARC/ARC audio return?
A: Press the SELECT button to switch to ARC or eARC mode (verify the ARC LED is lit). Ensure the Receiver's HDMI OUT is connected to an eARC/ARC-enabled TV or display. Check that ARC/CEC is enabled in the TV's settings menu.

Q: USB peripherals not working at the remote end?
A: Verify the HOST/DEVICE USB switch position matches the desired mode (Mode 1 or Mode 2). After changing the switch, power-cycle both the Transmitter and Receiver. Confirm the PC is connected to the USB HOST port on the active host side.

Q: Ethernet not connecting through the extender?
A: Check that the LAN port on both the Transmitter and Receiver are connected. The Gigabit indicator (green LED) on the LAN port should be lit. Verify that the CAT cable supports Gigabit speeds (CAT 6A or higher recommended).