



HBT3-4K-150AU



HDMI 2.0 4K60 4:4:4
HDBaseT Extender up to 150 meters

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1. Introduction

Aberman HBT3-4K-150AU – is an HDMI 4K 4:4:4 HDBaseT extender set. System supports point-to-point video extension, featured bidirectional transmission for USB2.0, RS232 and IR ports. The extension range is up to 150 meters. Extender supports the maximum input signal resolution up to 4K@60 4:4:4 with 18Gbps video bandwidth. Transmitter equipped with EDID management feature allowing to use factory or remote display data. Both units have equipped with unbalanced analog stereo out ports for de-embedding audio signal from HDMI stream. Extender based on the wide spread and good known Valens chipset. The latest specification of the HDBaseT 3.0 is supported. Extender offers long-range extension of UHD video, audio and control signals. The minimum compatible cable type is CAT6, while CAT6A or CAT7 cables are recommended. Extension distance support is varying based on cable type and signal bandwidth: for 1080p up to 150m and for 4K up to 100m. Transmitter and Receiver units housed in the compact and robust metal cases and ensure protection and cooling the system components. Units could be powered by the external power supplies or over CAT cable using PoC technology.

2. Features

- HDMI 1.4/2.0, HDCP 1.4/2.2
- Support 18 Gbps video bandwidth
- Support signal video resolution up to 4K60 4:4:4
- Color space: RGB, YCbCr, YCbCr 4:4:4, 4:2:2, 4:2:0
- Based on Valens chipset, HDBaseT 3.0 is supported
- Extension distance: 150m - 1080p@60, 100m - 4K
- EDID management feature on Transmitter
- Audio de-embedding feature on Transmitter & Receiver
- USB2.0 and two-way IR and RS232 extension
- Field firmware update option over USB
- Bidirectional POC feature is supported
- Units are housed in compact cases

3. Package Contents

- 1× HBT3-4K-150AU-TX Transmitter Unit
- 1× HBT3-4K-150AU-RX Receiver Unit
- 1× IR Receiver cable (1.5 meters)
- 1× IR Blaster cable (1.5 meters)
- 2× 3-pin Phoenix Connector
- 2× Mounting Set (bracket and screws)
- 1× Power Supply 24V, 1A
- 1× User Manual

4. Warranty Information

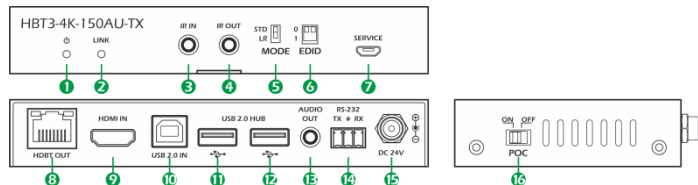
Aberman warrants all units to be free from defects in workmanship and materials, under normal use and service, for a period of one (1) year from the date of purchasing from authorized reseller.

If a product does not work as it warranted during this period, Aberman will repair or replace the defective product or its part. Replacement products may be new or reconditioned.

Warranty ends if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or servicing other than by Aberman or its authorized centers, causes other than from ordinary use or failure to properly use the Product in the application for which said Product is intended.

5. Unit's interfaces

5.1 Transmitter Unit



N	Type	Description
1	LED Red	Power Indicator, lit when power is applied to the unit
2	LED Green	Link Indicator, active when HDBaseT link is established
3	mJack 3.5mm Socket	IR Input Port – connect IR Receiver cable
4	mJack 3.5mm Socket	IR Output Port – connect IR Blaster cable
5	Mode Switch	Select STD/LR mode, check HDBaseT Interface Modes
6	EDID Switch	Select desired EDID mode, check EDID Management
7	Micro USB Socket	Service Only - firmware update port
8	RJ45 Socket	HDBaseT Out Interface – connect CAT cable to Receiver
9	HDMI Socket 19 pin	HDMI Input – connect to Source Device
10	USB 2.0 B Socket	USB 2.0 port – connect to Host PC
11	USB 2.0 A Socket	USB 2.0 HUB port – connect Peripheral Device
12	USB 2.0 A Socket	USB 2.0 HUB port – connect Peripheral Device
13	mJack 3.5mm Socket	Unbalanced Stereo Audio Output – connect to Speakers
14	Phoenix 3-pin Socket	RS232 port – connect to control system or device
15	Power Socket	DC Power Connector, 24V, 1A – connect Power Supply
16	POC Switch	Select POC ON/OFF, check HDBaseT Interface Modes

5.2 HDBaseT Interface Modes

The system uses HDBaseT Technology for digital signal extension. The specification of the HDBaseT 3.0 is supported. Extender supports two modes for long-range extension of UHD video signals:

STD - stands for Standard, offers 100 meters for 4K60/1080p signals

LR – stands for Long Range, offers 150 meters for 1080p signals

To achieve maximum resolution and extension distance CAT6A or CAT7 cables are recommended, while CAT5E and CAT6 also supported.

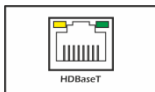
5.3 PoC Power-over-Cable

The PoC technology enables powering over CAT cable feature. This means that only one external power supply has to be connected to Transmitter or Receiver Unit, while other unit will be powered over the CAT cable. The feature could be disabled in case if the POC function is not needed or device connected by the HDBaseT link doesn't support this feature. Use the POC Switch on the units' side panels to turn the feature On or Off.

NOTE: Do not connect any PoC incompatible units to RJ45 ports - it can seriously damage equipment.

5.4 RJ45 Connector Indication

The RJ45 Connector has two LEDs which are could be used for understanding the current state of the system – Green for link status and Yellow for HDCP.



LED	Status	Description
Green	Constantly lit	HDBaseT interface linked, good connection
	Flashing	HDBaseT interface linked, poor connection
	Not lit	HDBaseT interface not linked, check CAT cable connection
Yellow	Constantly lit	Source signal detected, HDCP protection
	Flashing	Source signal detected, no HDCP protection
	Not lit	No Source signal detected

5.5 EDID Management

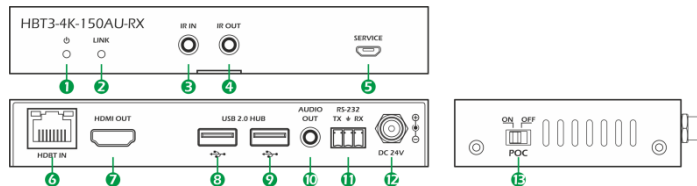
EDID emulator allows setting different modes for the source device. Use data from display connected to Transmitter or Receiver units, or use EDID data stored in the non-volatile memory. See the table below for details:

SW1	SW2	Description
0	0	Copy EDID data from Receiver Remote Output
0	1	Set native mode to 4K@30, LPCM 2.0 Audio
1	0	Set native mode to 1080p60, LPCM 2.0 Audio
1	1	Set native mode to 1920x1200p60RB, LPCM 2.0 Audio

5.6 Audio Features

De-Embedding – the HDMI signal may content embedded audio. Extender allows extracting this audio signal in 2.0 LPCM format on the analog audio ports on the Transmitter and Receiver units in unbalanced stereo audio format.

5.7 Receiver Unit



N	Type	Description
1	LED Red	Power Indicator, lit when power is applied to the unit
2	LED Green	Link Indicator, active when HDBaseT link is established
3	mJack 3.5mm Socket	IR Input Port – connect IR Receiver cable
4	mJack 3.5mm Socket	IR Output Port – connect IR Blaster cable
5	Micro USB Socket	Service Only - firmware update port
6	RJ45 Socket	HDBaseT Input Port – connect CAT cable to Transmitter
7	HDMI Socket 19 pin	HDMI Output – connect to Display Device
8	USB 2.0 A Socket	USB 2.0 HUB port – connect Peripheral Device
9	USB 2.0 A Socket	USB 2.0 HUB port – connect Peripheral Device
10	mJack 3.5mm Socket	Unbalanced Stereo Audio Output – connect to Speakers
11	Phoenix 3-pin Socket	RS232 port – connect to control system or device
12	Power Socket	DC Power Connector, 24V, 1A – connect Power Supply
13	POC Switch	Select POC ON/OFF, check HDBaseT Interface Modes

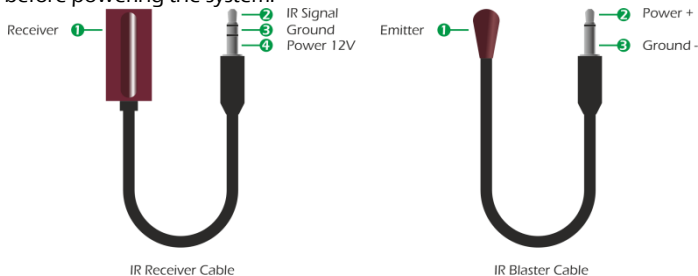
5.8 IR Extension Usage

Extender supports to send IR control data in both directions simultaneously. For example, this feature allows user to control a remote display device using its IR Remote control from the Transmitter side – by sending IR data to Receiver and at the same time - send IR control signals from the remote location to an HDMI source using its IR Remote control.

The supported IR range is 20 – 60KHz. The actual distance could vary depending on several IR parameters and environment conditions. The aiming of IR Remote is very important for distance. To achieve best results always point IR Remote to IR Receiver in between 45 to 90 degree angle, then the working distance will be about 5 to 8 meters in the line of sight.

5.9 IR Cables Pinout

We recommend use only IR cables from the set of the unit. The pinout of the mini Jack connector for IR cables may differ for different vendors. Always carefully check the connection of the peripheral equipment before powering the system.



6. Best Practice

Aberman engineers design products at the highest quality standards. To get the best results from our products, please read this manual carefully. We recommend using the best quality connectors, cables, and adapters. Consider the points below when you choose accessories and position equipment.

For best results with HDMI/DVI, use good quality cables up to 5 meters long for 4K and up to 15 meters for 1080p, or shorter if you are using any connection adapters. If you need to place your equipment more than 15 meters apart, we recommend using a signal extender. See Aberman Smart Extension product line of signal extenders to find correct one. Use only graded Speed HDMI cables.

In industrial environments, use shielded CAT cables (STP, FTP, F/UTP or S/FTP) with digital extenders. To achieve best performance and maximum distance use appropriate fiber optical types (Multi or Single Mode) and grades for optical extenders.

7. Safety Instructions

WARNING: To reduce the risk of fire or electric shock, do not expose this device to rain or moisture. Do not use this device near water. Clean only with a dry cloth.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device. This unit must be connected to an earthed mains socket outlet with the supplied cable. The AC wall outlet should be installed near to the unit and be easily accessible.

If using extenders which run a long distance, the protective earth circuit of the socket should be verified by a skilled person to ensure equipotential earth bonding. Do not use unit on objects or installations where power lines have grounding and/or different phase issues.

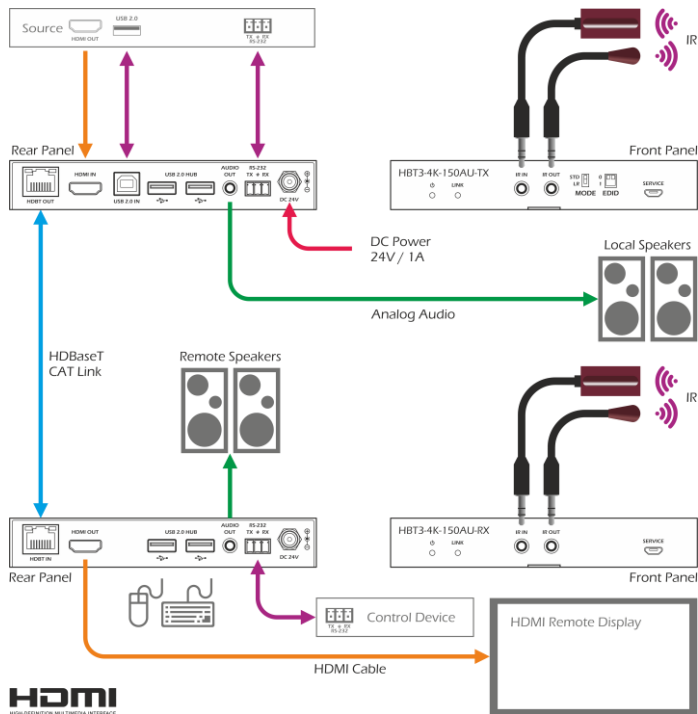
Unplug units during lightning storms or when unused for long periods of time.

Do not install unit near any heat sources such as radiators, heat registers, stoves, or devices (including amplifiers) that produce heat. Do not block any ventilation openings. This unit uses active cooling with fans. Do not install unit in dusty and/or dirty places. Use professional equipment racks with air condition and filters.

8. Specifications

SKU	HBT3-4K-150AU
Type	HDMI HDBaseT Extender
HDMI Compliance	HDMI 1.4/2.0
HDCP Compliance	HDCP 1.4/2.2
Resolutions supported	480i, 480p, 576i, 576p, 720p, 1080i, 1080p, 3840x2160, 4096x2160
Color Scales, Subsampling	RGB, YUV, 4:2:0, 4:2:2, 4:4:4
Color Depth Resolution	8, 10, 12-bit
HDMI Audio Formats	LPCM up to 7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus, DTS, DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X
USB Compliance	USB 2.0
RS232	Up to 115200 baud
IR Range	20 – 60KHz
HDBaseT Compliance	Valens Gen3, PoC
HDBaseT Bandwidth	18Gbps
Transmission Distance	up to 150 meters for 1080p60, up to 100 meters for 4K60
ESD Protection	±8kV air-gap, ±4kV contact (human body model discharge)
Enclosure material	Metal
Finished colour	Black
Power Supply	AC 110-240V, 50-60Hz / DC 24V, 1A
Power Consumption	14.28W PoC
Dimension	144x78x23mm
Weight (each unit)	0,32 kg
Operating Temperature	0°C ~ 40°C
Storage Temperature	-20°C ~ 60°C
Relative Humidity	20%~90% RH (non-condensing)
Transmitter	HBT3-4K-150AU-TX
Video Input	HDMI up to 3840x2160@60Hz, 4:4:4, HDMI type A, 19-pin
Audio Output	1x Analog Stereo Unbalanced, mJack 3,5 mm, stereo
USB Interface	1x USB 2.0 host, USB B Socket
	2x USB 2.0 peripheral, USB A Socket
RS232	1x Serial, Phoenix 3,81 mm, 3-pin
IR Input	1x IR, mJack 3,5 mm, stereo
IR Output	1x IR, mJack 3,5 mm, stereo
Extension Link Output	1x HDBaseT, RJ45
Firmware update port	1x USB, micro USB
Receiver	HBT3-4K-150AU-RX
Video Output	HDMI up to 3840x2160@60Hz, 4:4:4, HDMI type A, 19-pin
Audio Output	1x Analog Stereo Unbalanced, mJack 3,5 mm, stereo
USB Interface	2x USB 2.0 peripheral, USB A Socket
RS232	1x Serial, Phoenix 3,81 mm, 3-pin
IR Input	1x IR, mJack 3,5 mm, stereo
IR Output	1x IR, mJack 3,5 mm, stereo
Extension Link Input	1x HDBaseT, RJ45
Firmware update port	1x USB, micro USB

9. Connection Scheme Example



NOTE: to achieve maximum distance and signal resolution support it is recommended to use direct connection with shielded CAT6A or better cables for HDBaseT Link, the using of CAT5e cables, patch panels and adapters is acceptable, but actual supported distances and resolutions might be lower.