Specification

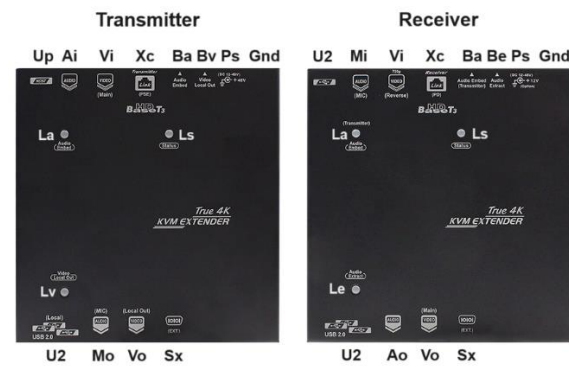| KEX-HBT3-S(H/D)90P		Transmitter Unit (PSE)	Receiver Unit (PD)
Maximum Resolution		4096 x 2160 @60Hz (4:4:4)	
		3840 x 2160 @60Hz (4:4:4)	
Video Extension	Main	Video Input x 1	Video Output x 1
	AUX	HDMI 2.0 Out x 1 (Local or Video Return)	HDMI Input x 1 (720P Video Return)
Link Port		RJ45 x 1 (Cat6a/7)	
Extension Distance		70 ~ 90m @ 4K60Hz (4:4:4)	
USB 2.0 Extension		USB-B x 1 (To Host)	USB-A x 3 (Front)
		USB-A x 1 (Local)	USB-A x 3 (Rear)
Serial Extension		RJ11 x 1	RJ11 x 1
Audio Extension		3.5mm Audio Input x 1	3.5mm Audio Output x 1
		3.5mm MIC Output x 1	3.5mm MIC Input x 1
Push Buttons		Audio Embed x 1 / Video Mode x 1	Audio Embed x 1 / Audio Extract x 1
LED Indicators		Audio Embed x 1 / Video Mode x 1 / Status x 1	Audio Embed x 1 / Audio Extract x 1 / Status x 1
Power Consumption		Total 15W (48V, 315mA for PoH TX-to-RX) (Non-PoH Models: Both Units connect to DC 12V)	
H x W x D (mm)		30 x 110 x 135	
Operating Environment		Temperature 0 ~ 50°C, Humidity 0 ~ 80%	
Storage Temperature		-20 ~ 60°C	

Installation

⚠️ **WARNING**
● Ensure all devices are powered off before connecting to the Unit.
● Make sure all devices you are connecting are properly grounded.

1. Use a Cat6a/7 cable to connect the transmitter & receiver.
2. Use an HDMI 2.0 cable to connect the source device to the HDMI input [**Vi**] port on the transmitter unit. Connect the stereo audio I/O to 3.5mm audio jacks (if necessary).
3. Use an HDMI 2.0 cable for connection between display and the HDMI output port on the receiver unit. Connect the stereo audio I/O to 3.5mm audio jacks (if necessary).
4. Apply proper power to the units, then power on the attached source and devices.

NOTE: If users encounter no video display in computer connection:
1. Make sure the devices' cables are correctly and firmly attached.
2. Set your display device's input source as HDMI 2.0 (DP if using DP Model).
3. Check the PC BIOS configuration about the video output setting.
4. Connect your computer to the display directly to check if the video signal gets through.

Product Description

Transmitter

Up Ai Vi Xc Ba Bv Ps Gnd

La ● ● Ls

Lv ●

U2 Mo Vo Sx

Receiver

U2 Mi Vi Xc Ba Be Ps Gnd

La ● ● Ls

Le ●

U2 Ao Vo Sx

Vi	Vo	Video Extension	[**Vi**] Connects to Local 4K Video Source / [**Vo**] Connects to Remote 4K/8K Display
	Vi	Video Input (Reverse)	[**Vi**] Connects to Remote 720P HDMI Source (Video Return)
Vo		Video Output (Local)	[**Vo**] Connects to Local Display (Local Console / Video Return)
Bv		Video Mode Button	Press & Hold for 2 Secs to Switch Between <u>Local Console Mode</u> & <u>Video Return Mode</u>
Lv		Video Mode LED	Emit **Green** in Local Console Mode
Ai	Ao	Audio Extension	Speaker Input [**Ai**] Connects to PC's Speaker Out / Speaker Output [**Ao**] Connects to an Active Speaker
Mo	Mi	Microphone Extension	MIC Input [**Mi**] Connects to an Active Microphone / MIC Output [**Mo**] Connects to PC's Microphone Input
Ba	Ba	Audio Embed Button	Press & Hold for 2 Secs to Turn On/Off Audio Embed
	Be	Audio Extract Button	Press & Hold for 2 Secs to Turn On/Off Audio Extract
La	La	Audio Embed LED	Emit **Yellow** in Audio Embed Mode
	Le	Audio Extract Mode	Emit **Yellow** in Audio Extract Mode
Up	U2	USB 2.0 Extension	USB-B [**Up**] Connects to PC (USB Host), / USB-A [**U2**] Connects to Device (KB/MS/Storage)
U2		Local USB 2.0	USB-A [**U2**] Connects to Device (KB/MS/Storage)
Ps		Transmitter Power	Connects to 48V DC (Non-PoH Models use 12V DC)
	Ps	Receiver Power*	Connects to Optional 12V DC (similar to Non-PoH Models)
Sx	Sx	Serial Extension**	[**Sx**] Connects to Serial Host or Serial Device
Ls	Ls	Status LED	See **LED Indicators**
Xc	Xc	RJ-45 Jack (Link Port)	Use a Cat6a/7 Cable for Connection Between 2 Units
Gnd	Gnd	Ground Terminal	Connects to Proper Ground

* Optional 12V DC Input (RX Power Adapter not included) reserved in case PoH fails, may take up to 48V DC
** Use RJ11-to-DB9 and DB9-to-USB Adapter if necessary

User Manual

HDBaseT 3.0

4K 60Hz 4:4:4 HDBaseT Extender with Local Out, Audio Embedding/Extracting, RS-232 & USB 2.0 Extension, PoH

KEX-HBT3-SH90P and KEX-HBT3-SD90P User Manual

Product Family					
Model	Video Ext	PoH (TX to RX)	IR Ext	USB Ext	Serial Ext
KEX-HBT3-SH90	HDMI 2.0	-	-		
KEX-HBT3-SH90P	HDMI 2.0	Yes	-	Yes	Yes
KEX-HBT3-SD90P	DisplayPort	Yes	-		

Connection Diagram
(Local Console Application)

HDMI 2.0 In
Audio In
USB 2.0

CAT 6a/7 Up to 70~90M

MIC In

Transmitter

Receiver

Serial EXT.

HDMI 2.0 Out

Audio Out

USB

MIC Out

Serial EXT.

HDMI 2.0 Local Out

Computer

4K 60Hz
Local Console

USB

Remote Console 4K60Hz (4:4:4)
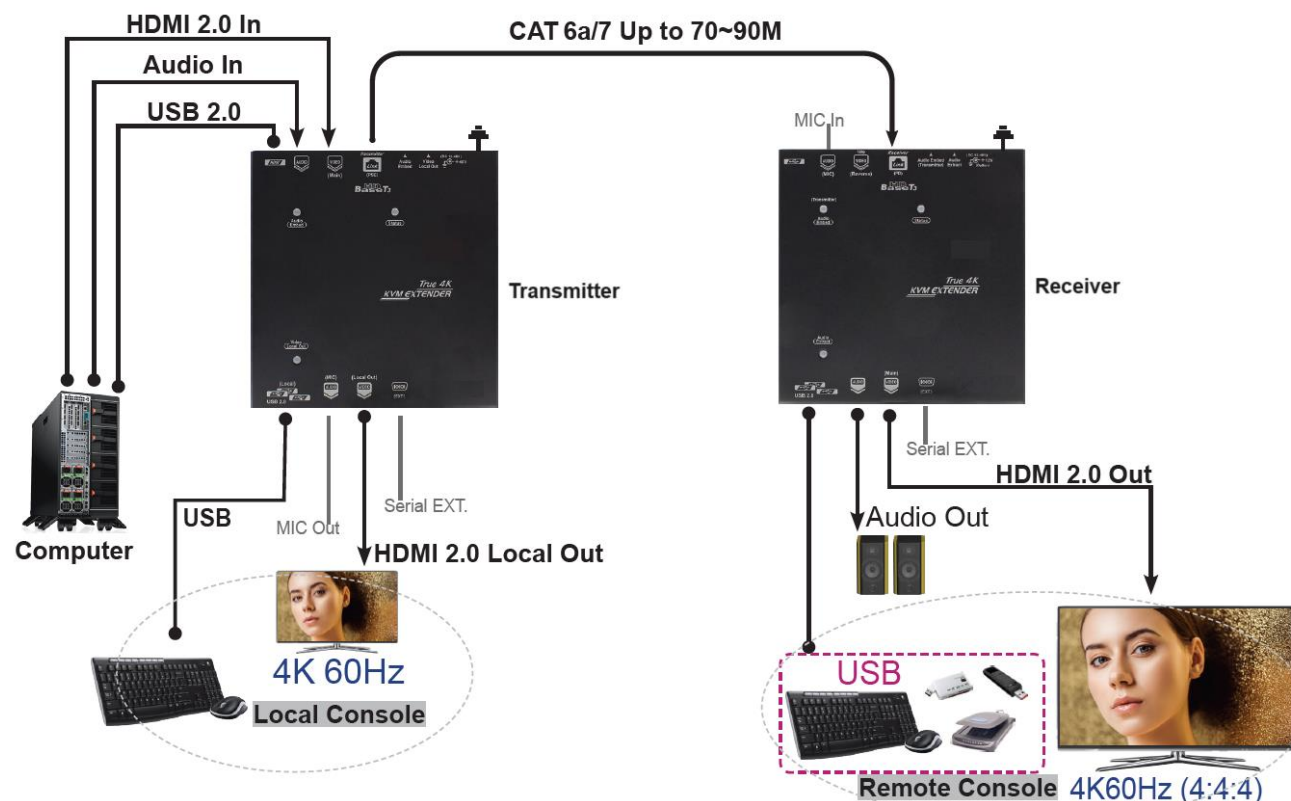
Connection Diagram
(Video Return Application)

HDMI 2.0 In
Audio In
USB 2.0

CAT 6a/7 Up to 70~90M

720P HDMI Video Return In

MIC In

Transmitter

Receiver

USB 2.0

MIC Out

Serial EXT.

Serial EXT.

HDMI 2.0 Out

Audio Out

Computer

720P Video Return

USB

Remote Console 4K60Hz (4:4:4)
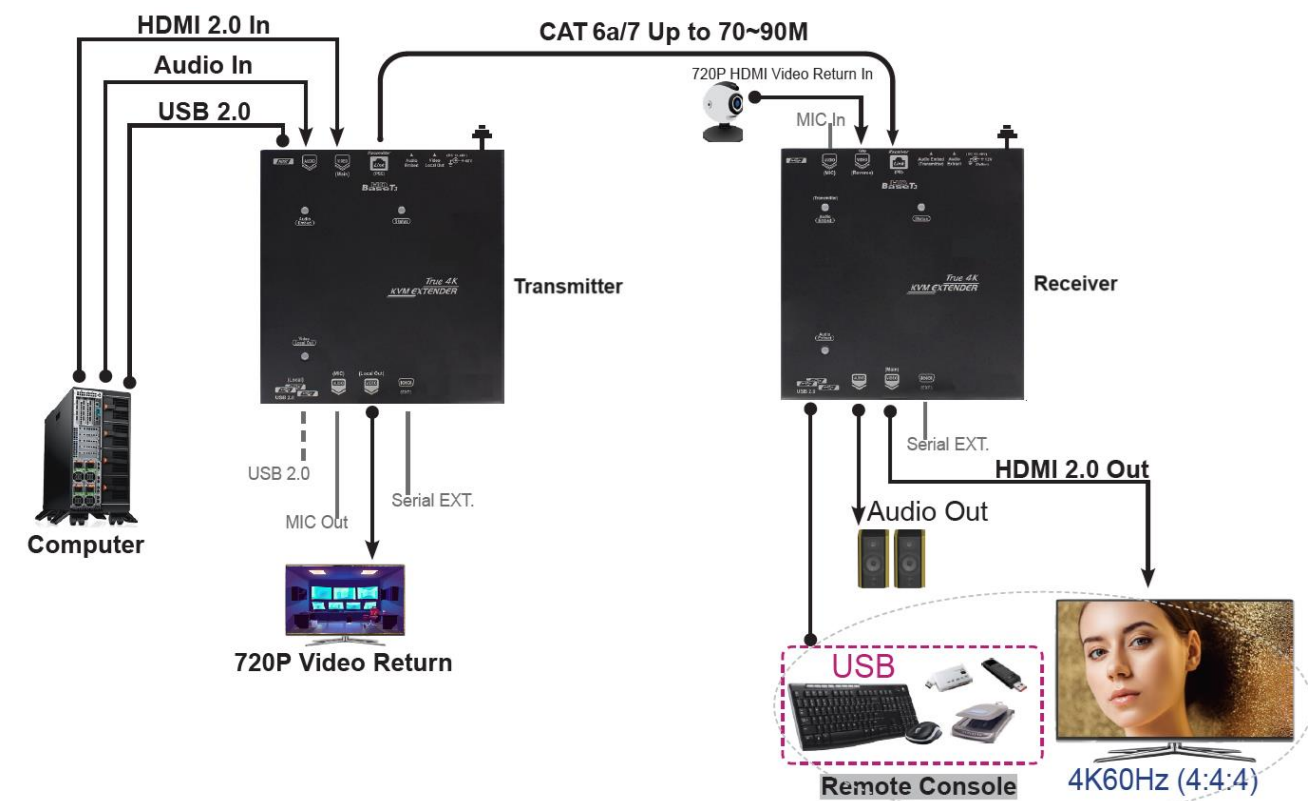
LED Indicators

System LED [Ls]	
Transmitter Unit	No Connection : **Green** Link OK : **Blue** (HDCP Video: **Purple**)
Receiver Unit	No Connection : **Red** Link OK : **Blue** (HDCP Video: **Purple**)

Video Mode LED [Lv]	
Local Console Mode	Emit **Green**
Video Return Mode	**Off** (Default)

Audio Embed LED [La]	
Audio Embed On	Emit **Yellow**
Audio Embed Off	**Off** (Default)

Audio Extract LED [Le]	
Audio Extract On	Emit **Yellow**
Audio Extract Off	**Off** (Default)

-------------------------- **RECOMMENDATION** --------------------------

Grounding

While using the HDBaseT product, the high-speed digital application may be sensitive to the environment. We strongly recommend grounding.

Local Console Mode & Video Return Mode

	Status
Local Console Mode	Local HDMI Output [**Vo**] duplicates the Transmitter's Video Input [**Vi**] & supports up to 4K 60Hz (4:4:4) resolution
Video Return Mode	Local HDMI Output [**Vo**] displays the Receiver's Video Input [**Vi**] & supports up to 720p resolution

* Press & Hold Video Mode Button [**Bv**] for 2 secs to toggle between Video Modes

** Video Return Mode and other upstream extensions (e.g., USB 2.0 and Serial) share the available upstream bandwidth. If the Video Return Mode is enabled, it may affect the performance of other extensions, and media playback (e.g., playing of audio/video file from an extended USB drive) should be avoided.

Audio Modes

Users can switch audio embedding or audio extraction On/Off to enable the following three audio modes.

Audio Modes	Audio Embed*	Audio Extract**	Audio Source for Receiver's Audio Outputs	
			Video Out [Vo]	Audio Out [Ao]
1. Independent Transmission	OFF	OFF	Video In [**Vi**]	Audio In [**Ai**]
2. Audio Embed Mode	ON	ON or OFF	Audio In [**Ai**]	Audio In [**Ai**]
3. Audio Extract Mode	OFF	ON	Video In [**Vi**]	Video In [**Vi**]

Audio Modes	Status
Independent Transmission	Native HDMI/DP Audio Extends to The Receiver's HDMI/DP ($Vi^{TX} \to Vo^{RX}$) 3.5mm Audio Extends to The Receiver's Audio Output ($Ai^{TX} \to Ao^{RX}$)
Audio Embed Mode	3.5mm Audio Extends to The Receiver's Video ($Ai^{TX} \to Vo^{RX}$) 3.5mm Audio Also Extends to The Receiver's Audio Output ($Ai^{TX} \to Ao^{RX}$)
Audio Extract Mode	Native HDMI/DP Audio Extends to The Receiver's HDMI/DP ($Vi^{TX} \to Vo^{RX}$) Native HDMI/DP Audio Extends to The Receiver's Audio Output ($Vi^{TX} \to Ao^{RX}$)

* Press & Hold Audio Embed Button [**Ba**] for 2 Secs to Turn On/Off Audio Embed
** Press & Hold Audio Extract Button [**Be**] for 2 Secs to Turn On/Off Audio Extract
***When Audio Embed / Video Return Functions' Status is Changed, **Re-Powering of the Units are Required**.

Serial Extension

1. **RJ-11 with DB9 Adaptor (Recommended) :**
   User may use the RJ11-to-DB9 adapter to convert the RJ-11 connector to a standard RS-232 (DB9) connector. This allows serial control extension via either a computer or a central control unit.
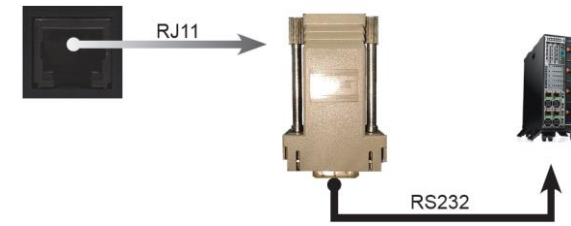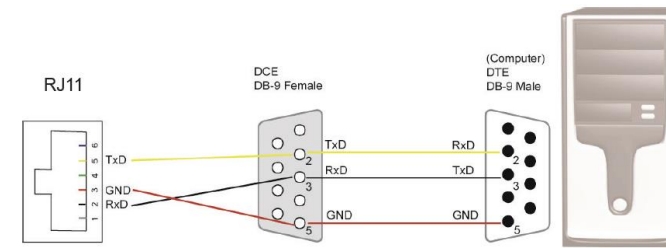
   RS232-to-USB Converter
   User may purchase a RS232-to-USB converter to connect to the computer that has no COM port (for example, a laptop).

2. **RJ-11 Hard-Wiring :**
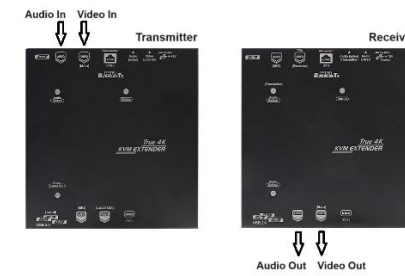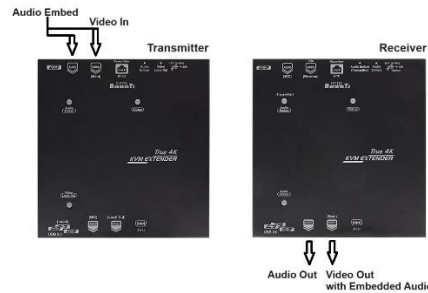   Experienced user may connect the serial extension to a central control panel or unit by hard-wiring the RJ-11 cable. The following is the pinout definition of the serial extension connector.

Limited Warranty

Audio Embed LED
Yellow - Embed
Dark - Normal

Status LED
Green - No Connection
Blue - Link
Purple - HDCP

Video Mode LED
Green - Local Console
Dark - Video Return

Transmitter

Audio Embed LED
Yellow - Embed
Dark - Normal

Status LED
Red - No Connection
Blue - Link
Purple - HDCP

Audio Extract LED
Yellow - Extract
Dark - Normal

Receiver

Independent Transmission

Audio In   Video In   Transmitter   Receiver
Audio Out   Video Out

Audio Embed

Audio Embed   Video In   Transmitter   Receiver
Audio Out   Video Out with Embedded Audio

Audio Extract

Video In   Transmitter   Receiver
Audio Out Extracted from Video   Video Out