Specification

| KEX-HBT3-SH5K90		Transmitter Unit	Receiver Unit
Max Resolution (see Resolution section on 5K)		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		RJ-45 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 3 (Local Device)	USB-A x 1 (Rear)
Serial Extension		RJ-11 x 1	RJ-11 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 Supply (Max) / Typical Consumption		DC 12V/1.5A (15W) 5.4W (Typical)	DC 12V/1.5A (15W) 6.6W (Typical)
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 the 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.
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
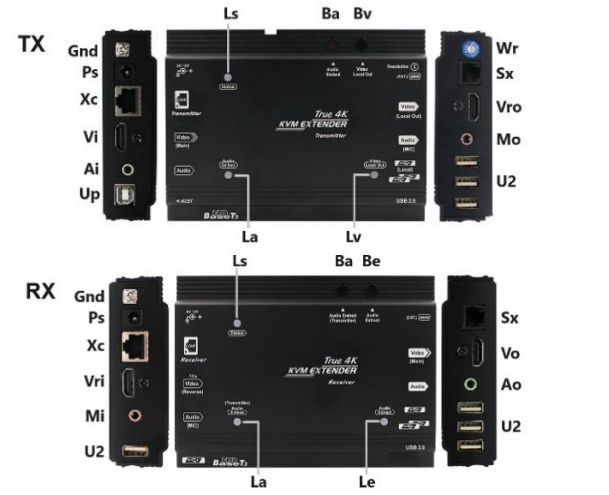
Vi	**Vo**	Video Extension	[**Vi**] Connects to Local 4K Video Source [**Vo**] Connects to Remote 4K/5K Display
Wr	-	Resolution Switch	Turn to select the EDID Resolution for the Video Source
-	**Vri**	Video Input (Reverse)	[**Vri**] Connects to Remote 720P HDMI Source (Video Rtn)
Vro	-	Video Output (Local)	[**Vro**] Connects to Local Display (Local Console/Video Rtn)
Bv	-	Video Mode Button	Press & Hold for 2 Secs to Switch Between **Local Console Mode** and **Video Return Mode**
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	**Ps**	Power Supply	Connects to 12V DC
Sx	**Sx**	Serial Extension	[**Sx**] Connects to Serial Host or Serial Device
Ls	**Ls**	Status LED	See **LED Indicators**
Xc	**Xc**	RJ-45 (Link Port)	Use a CAT6a/7 Cable for Connection Between 2 Units
Gnd	**Gnd**	Ground Terminal	Connects to Proper Ground

Features

- Enables reliable local and 70 ~ 90m* remote access to a 4K60 HDMI 2.0 computer or a/v source via a CAT6a/7 cable.
- Popular resolutions supported by the HDMI 2.0 video up to 4K@60Hz (4:4:4), 5K, 2048x2048 (ATC) and 12MP (Medical).
- EDID Management supports copying of EDID from the Receiver connected Monitor to mitigate monitor incompatibility.
- HDCP 2.2 and 1.4 Compliance ensures proper HDCP video playback.
- USB 2.0 Extension supports keyboard, mouse, USB storage and camera.
- HDBaseT 3.0 Technology allows uncompressed HDMI extension.
- Local Console Mode with HDMI 2.0 and USB 2.0 provides a local KVM console to the computer.
- Video Return Mode** allows an auxiliary 720P video from the Receiver.
- Serial Extension facilitates integration with RS-232 Control Systems.
- CEC pass-through facilitates easy control.
- Audio embedding allows users to insert informative audio content into the HDMI signal.
- Audio extracting enables easy connection to an analog audio amplifier.
- Audio Embed Controls on both sides allow versatile audio applications.
- Audio Return Channel support facilitates audio applications.

Package Contents

- 1 x Transmitter Unit
- 1 x Receiver Unit
- 2 x Power Adapter
- 1 x USB A-B Cable (for USB Host)
- 2 x Serial Adapter
- 1 x User Manual
- 2 x Foot Pad Set
- 2 x Mounting Bracket Set

* Video Extension Distance Depends on Cable Quality. Use High Quality HDBaseT 3.0 Premium Certified Cable for Optimum Result.

** Video Return Mode and other upstream extensions (e.g., USB 2.0 or Serial) share the available upstream bandwidth. If 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.

User Manual

HDBT HDBaseT 3.0

4K 60Hz 4:4:4 HDBaseT Extender with Local Out, Audio Embedding/Extracting, RS-232 & USB 2.0 Extension, 5K Support

KEX-HBT3-SH5K90
Transmitter Unit + Receiver Unit

Connection Diagram (Local Console Application)

HDMI 2.0 In
Audio In
USB 2.0
CAT 6a/7 Up to 70~100M
MIC In
Transmitter
Receiver
USB
MIC Out
Serial EXT.
Serial EXT.
HDMI 2.0 Out
Audio Out
Computer
HDMI 2.0 Local Out
4K 60Hz
Local Console
USB
Remote Console
4K60Hz (4:4:4)
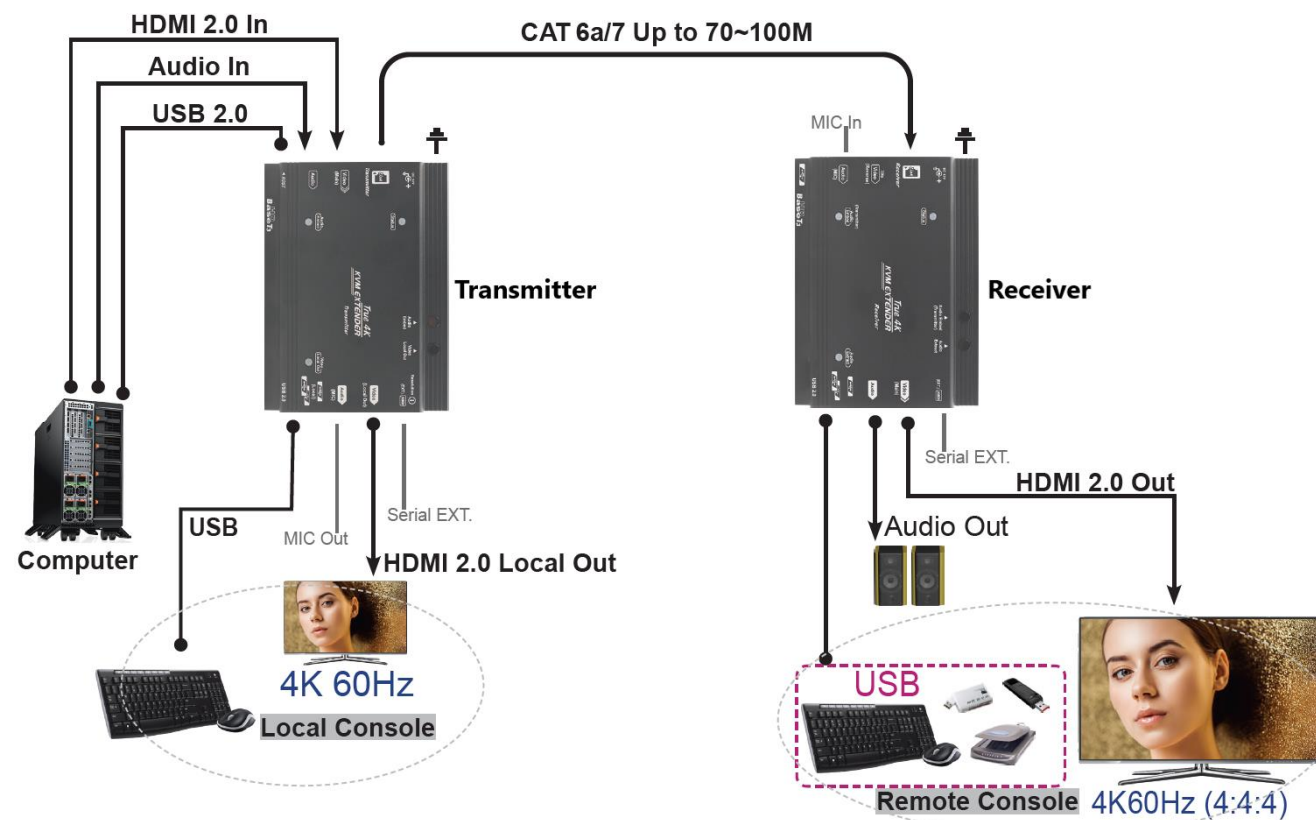
Connection Diagram (Video Return Application)

HDMI 2.0 In
Audio In
USB 2.0
CAT 6a/7 Up to 70~100M
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)
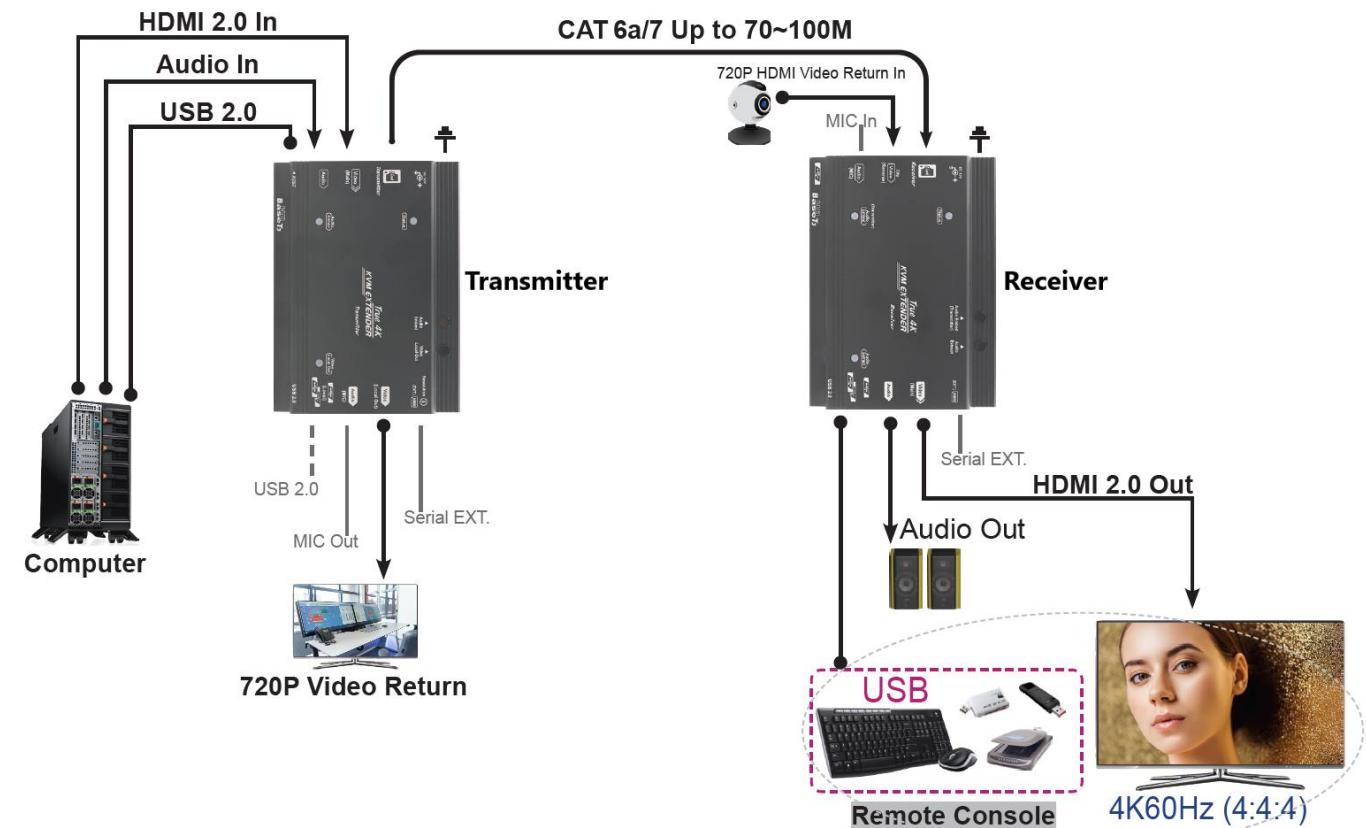
Installation

1. Connect the Transmitter Unit to the PC (Video In / Audio In / MIC Out / Serial Ext. / USB Ext.)
2. Connect the Receiver to a KVM Console (Video Out / Audio Out / MIC In / Serial Ext. / USB Ext.)
3. Connect the Transmitter Unit and the Receiver Unit with a good-quality CAT6a/7 cable
4. Apply Proper Power and Grounding to the System

Resolution
(EDID Management +, Copies Most Popular & Special Resolutions)

Adjust the Resolution Switch to set the EDID communicated to the computer according to the following table:

Number	Resolution
0	Auto Copy (Remote Monitor)
1	Manual Copy (Remote Monitor)*
2	2560x2880@60Hz (16:18)
3	3840x4320@30Hz (16:18)
4	3840x2160@60Hz (16:9)
5	5120x1440@60Hz (32:9)
6	5120x2160@50Hz (21:9)
7	5120x2880@30Hz (16:9)
8	7680x2160@30Hz (32:9)
9	4096x2160@60Hz (16:9)
A	2048x2048@60Hz (ATC)
B	Reserved (4K)
C	Reserved (4K)
D	3072x2048 (Medical)
E	3280x2048 (Medical)
F	4200x2800 (Medical)

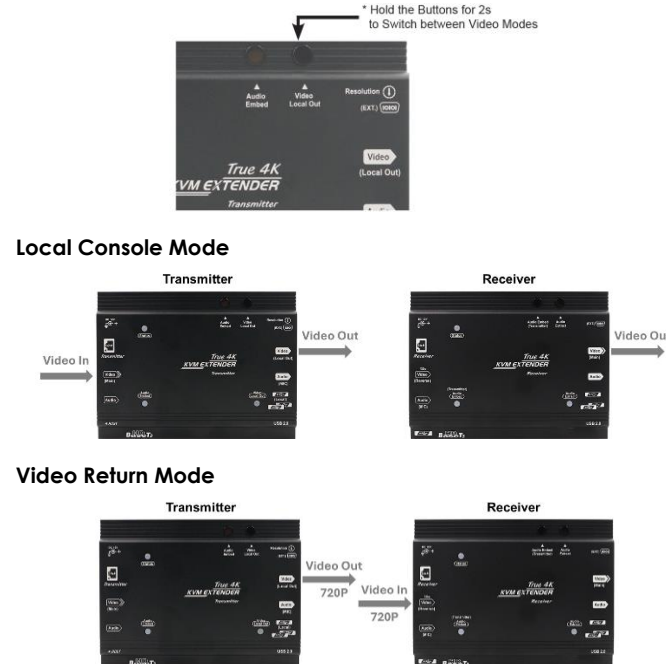* Hold These Buttons Together for >3s to Perform Manual Copy

Audio Modes
(Independent Transmission / Embed / Extract)

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 Audio Extends to The Receiver's HDMI ($Vi^{TX} \to Vo^{RX}$) 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 HDMI 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 Audio Extends to The Receiver's HDMI ($Vi^{TX} \to Vo^{RX}$) Native HDMI 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 the Units are Required**.

Video Modes
(Local Console Mode / Video Return Mode)

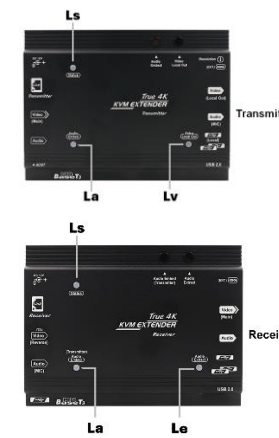| Video Modes*	Status
Local Console Mode	Local HDMI Output [**Vo**] duplicates the Transmitter's Video Input [**Vi**] & supports up to 4K 60Hz (4:4:4) resolution
Video Return Mode**	Local HDMI Output [**Vo**] displays the Receiver's Video Input [**Vi**] & supports up to 720p resolution

* 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 or 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.
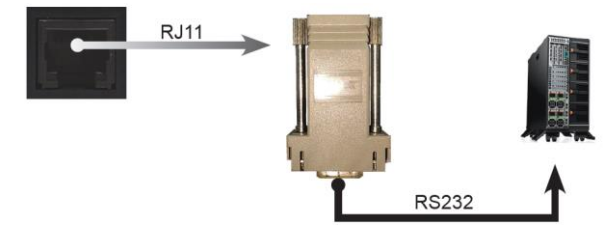

Local Console Mode

Video Return Mode

Transmitter

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

Video Mode LED
Green – Local Console
Dark – Video Return

Audio Embed LED
Yellow – Embed
Dark – Normal

Receiver

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

Audio Extract LED
Yellow – Extract
Dark – Normal

Audio Embed LED
Yellow – Embed
Dark – Normal

LED Indicators

	System LED [Ls]

Transmitter Unit	No Connection : **Green**
	Link OK : **Blue** (HDCP Video: **Purple**)
	Ready to Copy EDID : Flash **Green** Fast
	  Success – Emit **Green** for 3s
	  Failed – Emit **Red** for 3s

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)

Independent Transmission

Audio Embed

Audio Embed also applies to Video Mode - Local Console Mode
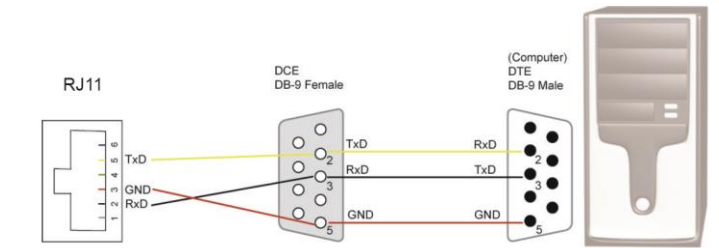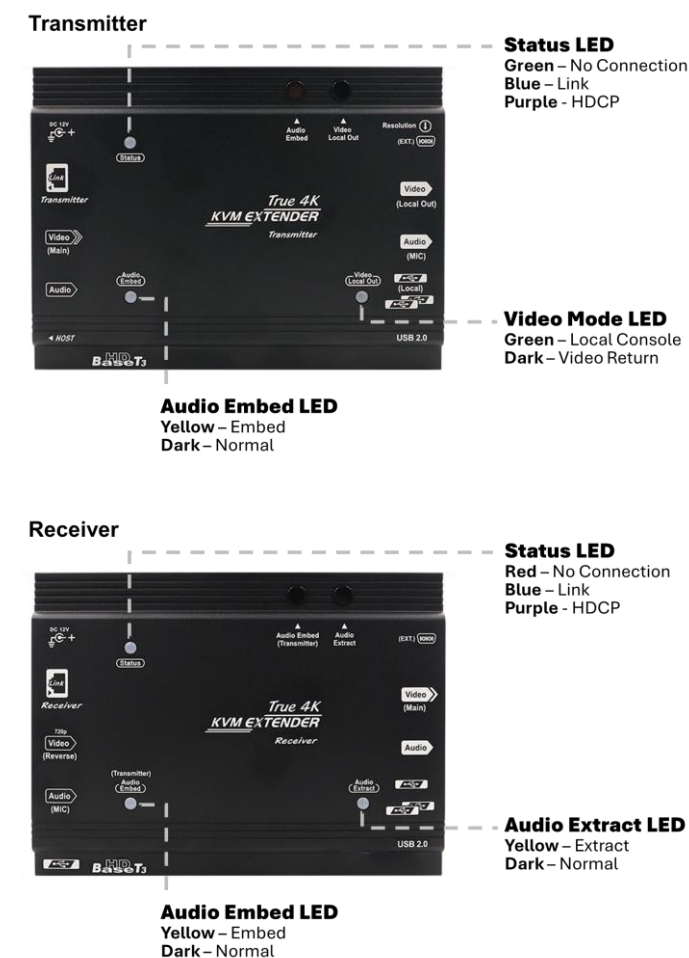
Audio Extract

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.

2. **RJ-11 Hard-Wiring :**
   Experienced users 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.

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

Grounding

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