

PureLink

HCE III Owner's Manual



HDMI 2.0 Ultra HD/4K HDR HDBaseT Extender
with Control and Bi-directional POC

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Manual version	Release date
1.0	1/23/2017

1.1 Safety Precautions

- All safety instructions should be read and understood before the unit is operated.
- The owner's manual and safety instructions should be retained for future reference.
- Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth only.
- Keep away from wet, magnetic, and flammable surfaces or substances.
- Always use the correct power supply (indicated on the product label) when operating this unit.
- This unit may be equipped with a 3 wire grounding-type plug - a plug having a third (grounding) pin. This pin will only fit in to a grounding type power outlet. If you are unable to insert the plug in to the outlet, contact your electrician to replace your obsolete outlet.
- Air vents should be kept clean and unobstructed at all times.
- Please refrain from using frayed power cords and damaged wall outlets.
- Do not place any heavy objects or equipment on top of the unit.

If you experience any malfunctioning of product or have any question as to operation of the product, please contact our customer service center.

PureLink™

Tel: 201.488.3232

Email: support@purelinkav.com

1.2 What's in the Box

Please make sure all of the following items are included in the package:

- 1 x HCE III transmitter module
- 1 x HCE III receiver module
- 1 x Power adapter
- 2 x IR blaster
- 2 x IR receiver
- 1 x User manual

1.3 Product Introduction

The PureLink HCE III HDMI 2.0 Ultra HD/4K HDR HDBaseT extender with IR, RS-232 control and bi-directional POC. It is a transmitter and receiver set for long distance extension of HDMI video and embedded audio, with bi-directional control signal (IR and RS232) over single CAT 5/6/7- type cable. It is designed on HDBaseT technology which allows full 3D support with up to 230ft (70m) at 1080P@60Hz, and 130ft (40m) at 4K (UHD) resolution. It supports 4K60 4:4:4 color format, HDMI 2.0, HDCP 2.2 compliant, HDR and 18 Gbps data rate. HCE III features PureLink's proprietary **Précis** visually loss less light compression technology to transmit 4K/60 4:4:4 and HDR signal over single CAT cable. A low profile enclosure makes the HCE III ideal for a limited space environment such as behind a flat-panel display.

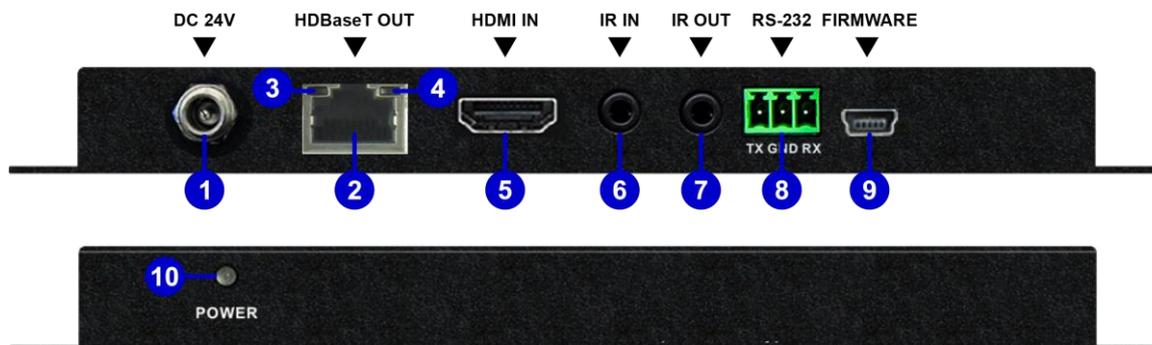
1.4 Features

- **HDMI 2.0 Ultra HD/4K 60Hz 4:4:4 color format support**
- **High Dynamic Range (HDR) 10 bits support**
- **Extends 1080p signal up to 230 ft (70m) and Ultra HD/4K signal up to 130 ft (40m)**
- **HDCP 2.2 compliant**
- **High bandwidth up to 18 Gbps**
- **BT2020 color representation**
- **Bi-directional POC**
 - Only one side needs to be locally powered
 - Transmitter can power receiver via PoC (Power over Cable) or
 - Receiver can power Transmitter via PoC (Power over Cable)
- **IR, RS-232 bi-directional control extension**
- **CEC pass-through**
- **Zero loss & Zero noise delivery of digital high definition video and audio signal**
- **Noise cancellation and error correction logic enhances HDMI video and audio signal**
- **Supports Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio plus LPCM (up to 192kHz)**
- **DVI and DisplayPort support via HDMI ports with adapters (sold separately)**
- **Locking power supply**

- Low profile design for a limited space environment such as behind a flat panel display

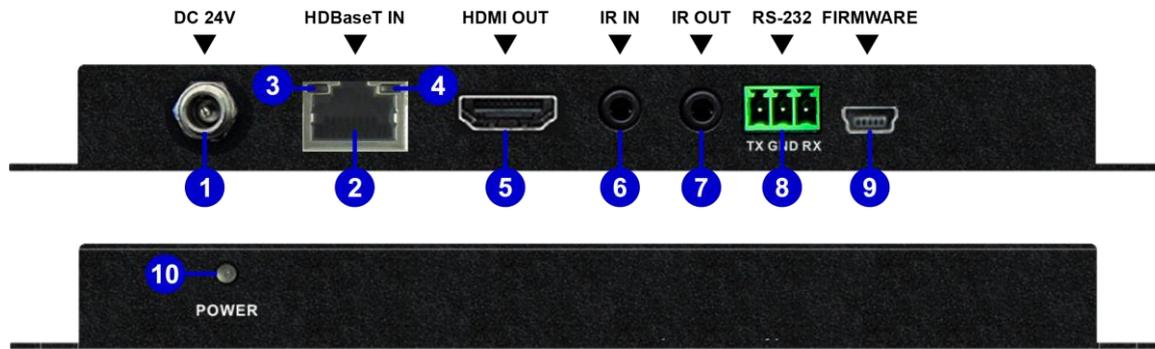
1.5 Product View and Connection Ports

Transmitter



1. 24V/1A power supply unit input connector (locking type)
2. HDBaseT output
3. LED indicator for Tx/Rx interconnection status
 - Solid: Good connection between Transmitter and Receiver
 - Flashing: Poor connection between Transmitter and Receiver
 - Dark: No connection between Transmitter and Receiver
4. LED indicator for signal status
 - Solid: HDMI signal with HDCP
 - Flashing: HDMI signal without HDCP
 - Dark: No HDMI signal
5. HDMI input
6. IR input
7. IR output
8. RS232 port (Tx Ground Rx)
9. Firmware port
10. POWER status LED

Receiver



1. 24V/1A power supply unit input connector (locking type)
2. HDBaseT Input
3. LED indicator for Tx/Rx interconnection status
 - Solid: Good connection between Transmitter and Receiver
 - Flashing: Poor connection between Transmitter and Receiver
 - Dark: No connection between Transmitter and Receiver
4. LED indicator for signal status
 - Solid: HDMI signal with HDCP
 - Flashing: HDMI signal without HDCP
 - Dark: No HDMI signal
5. HDMI Output
6. IR input
7. IR output
8. RS232 port (Tx Ground Rx)
9. Firmware port
10. POWER status LED

1.6 Product Specifications

General Specification	
Power	Input: AC100 – 240V 50/60Hz Output: DC 24V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	24W (max)
Operational Temperature	32° ~ 117° F (0° to 47° C)
Storage Temperature	- 4° ~ 140° F (-20° to 60° C)
Humidity	0 ~ 90% non-condensing
MTBF	50,000 hours
Dimensions (W x D x H)	7.2" x 3.5" x 0.7" (183 x 88 x 18mm)
Shipping Dimensions (with cover box)	TBD
Weight	Tx: 1.0 lbs (0.45 kg) Rx: 1.0 lbs (0.45 kg)
Shipping Weight (with accessories and cover box)	TBD

Technical Specification	
HDMI Version	HDMI 2.0
HDCP Compliance	HDCP 2.2
Data Rate	18 Gbps
Resolution	Ultra HD/4K up to 4096 x 2160 @50/60Hz (RGB 4:4:4, YCbCr 4:4:4, 4:2:2, 4:2:0)
HDMI Audio	LPCM 2/5.1/7.1 Ch, Dolby Digital+, Dolby TrueHD, Dolby Digital, Dolby Atmos, DTS:X, DTS-HD Master Audio, DTS 5.1
Transmitter	Inputs: 1 x HDMI Type A [19-pin female] 1 x IR input [3.5mm stereo mini-jack] 1 x RS232 [Phoenix connector] 1 x Firmware [Mini USB] Outputs: 1 x HDBaseT [RJ45] 1 x IR output [3.5mm stereo mini-jack]
Receiver	Inputs: 1 x HDBaseT [RJ45] 1 x IR input [3.5mm stereo mini-jack] 1 x RS232 [Phoenix connector] 1 x Firmware [Mini USB] Outputs: 1 x HDMI Type A [19-pin female] 1 x IR input [3.5mm stereo mini-jack]

*** Signal Travel Range Specification by CAT cable type**

***Please use CAT6a/CAT7 cable for maximum distance transmission.**

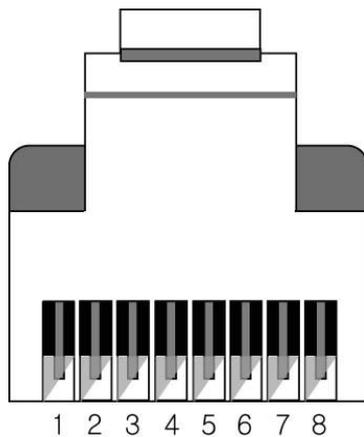
Cable Type	Range	Pixel Clock Rate	Data Rate	Supported Video
CAT5e/CAT6	60 m	<= 225 MHz	<= 5.3 Gbps (HD Video)	Up to 1080p, 60Hz (Data rates lower than 5.3 Gbps or below 225 MHz TMDS clock)
	35 m	> 225 MHz	> 5.3 Gbps (Ultra HD Video)	1080p 60Hz, 1080p60Hz 3D, and Ultra HD/4K 60Hz video
CAT6a/CAT7	70 m	<= 225 MHz	<= 5.3 Gbps (HD Video)	Up to 1080p, 60Hz (Data rates lower than 5.3 Gbps or below 225 MHz TMDS clock)
	40 m	> 225 MHz	> 5.3 Gbps (Ultra HD Video)	1080p 60Hz, 1080p60Hz 3D, and Ultra HD/4K 60Hz video

1.7 Cable Termination

- CATx (HDBaseT) cable
- RS-232

CATx (HDBaseT) Cable Termination

HCE III Tx/Rx is designed with TIA/EIA-568-B Standard. Please ensure that each PIN layout of the cable is corresponding with the picture below before connecting the cable. Please note that CAT6 or above level cable enables to deliver better quality and longer distance.



Pin	TIA/EIA-568B	Signal
	Wire color	Digital RGB
1	Orange/ White	TMDS Data2+
2	Orange	TMDS Data2-
3	Green/ White	TMDS Data1+
4	Blue	TMDS Data0+
5	Blue/ White	TMDS Data0-
6	Green	TMDS Data1-
7	Brown/ White	TMDS Clock+
8	Brown	TMDS Clock-

PureLink offers TotalWire CAT-X high performance cable for your CATx cable needs.

PureLink also offers extended warranty of HCE III Tx/Rx product when CX cables are used together. For detail information, please contact support@purelinkav.com.

CX SERIES

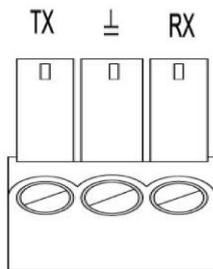


TOTALWIRE™ CAT-X High Performance Cable

CX-010	Certified CATx Cable with TotalWire Technology - 10m
CX-020	Certified CATx Cable with TotalWire Technology - 20m
CX-030	Certified CATx Cable with TotalWire Technology - 30m
CX-040	Certified CATx Cable with TotalWire Technology - 40m
CX-050	Certified CATx Cable with TotalWire Technology - 50m
CX-070	Certified CATx Cable with TotalWire Technology - 70m
CX-100	Certified CATx Cable with TotalWire Technology - 100m
CX-1000	Certified CATx Cable with TotalWire Technology - 1000' Reel

RS-232 Cable Termination (for HTX receiver pass-thru)

3-pin Phoenix connector is used for RS-232 communication between HCE III Tx/Rx and connected devices.



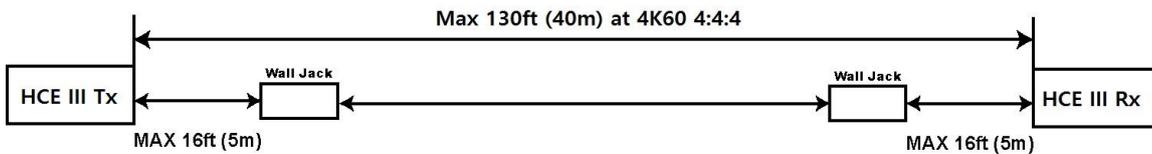
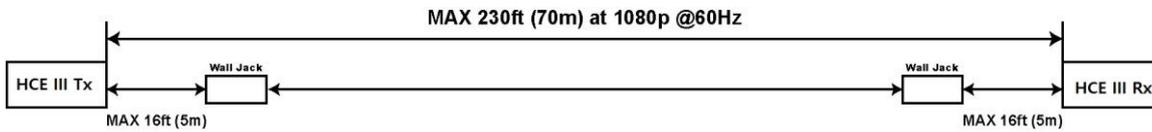
Pin	RS-232
1	Tx
2	Ground
3	Rx

* Pinout from the left

1.8 Transmission Distance

The maximum transmission distance up to 230ft (70m), use lower resolution won't extend longer distance

If connection through the wall socket, the cable length must less 5 meters between HDMI extender and wall jack, as below drawing:



1.9 Installation and Connection Instructions

1. Turn off both the video source and the display before connecting any cables.
2. Connect CATx cable between the HCE III transmitter and the HCE III receiver.
3. Connect HDMI cable between the source and the HCE III transmitter AND the HCE III receiver and the display.
4. Connect the power supply unit to both HCE III transmitter and receiver module.
5. Turn on Display.
6. Turn on Video Source.

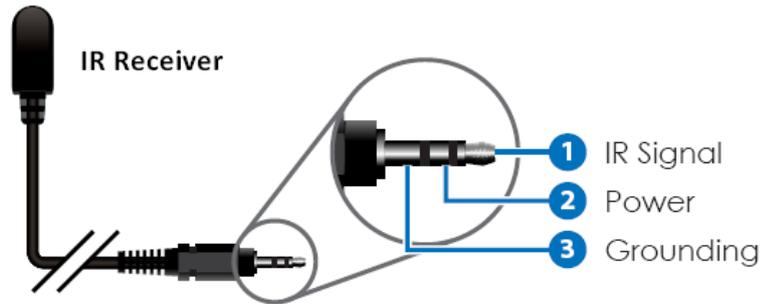
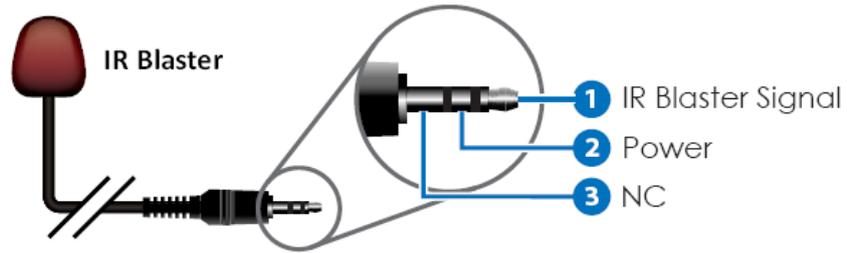
1.10 IR Information

IR RECEIVER



IR BLASTER



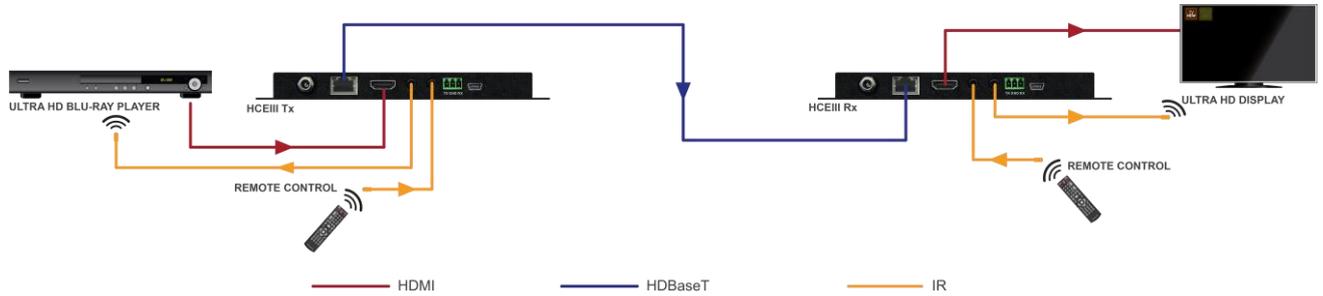


- IR Blaster is always on the end point (display)
- Use the remote control of the end point device facing the IR receiver.

NOTE: Infrared receiving areas of devices can be located by shining a flashlight onto the front of the device – the sensor should be able to be seen through the plastic as a small, round object inside. Insert 3.5mm jacks of IR RX receivers into RX ports, making sure the receivers themselves are placed in clear view to receive an infrared signal from the remote handset used to control the display outputs.

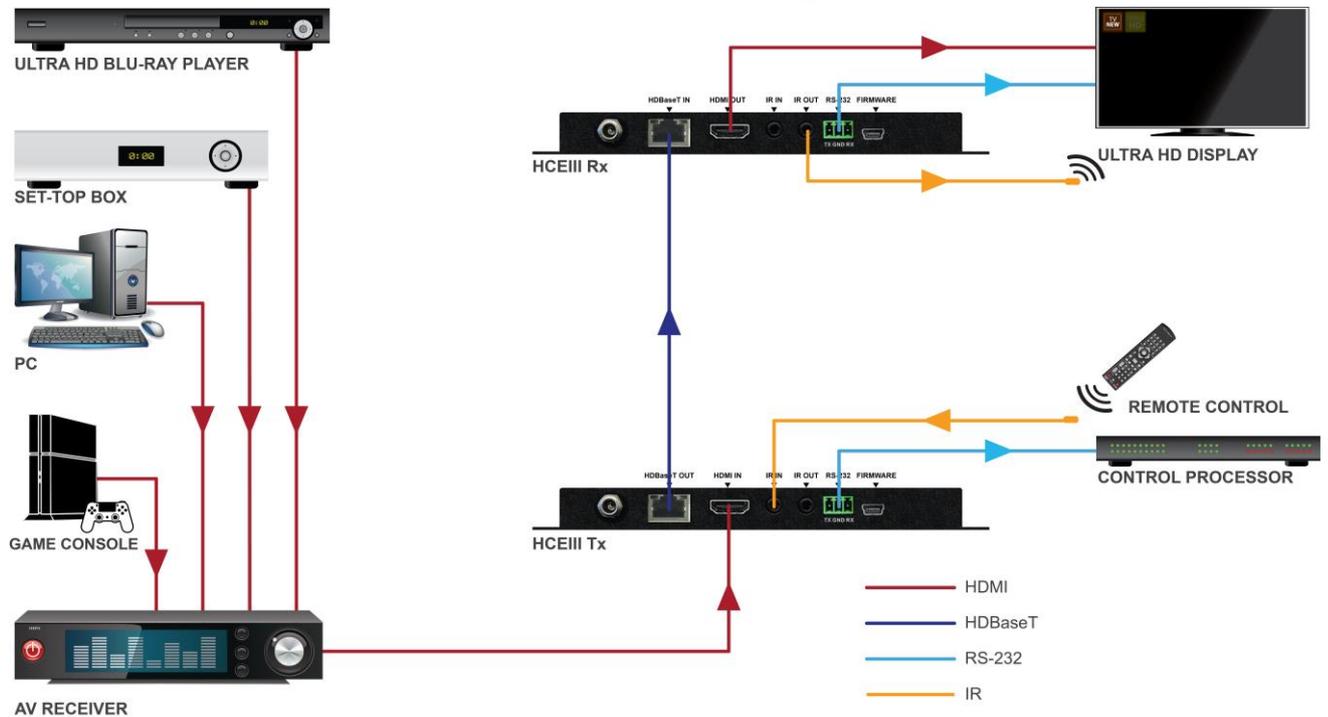
Chapter 2. Application Diagram Examples

2.1 Single source and single display extension



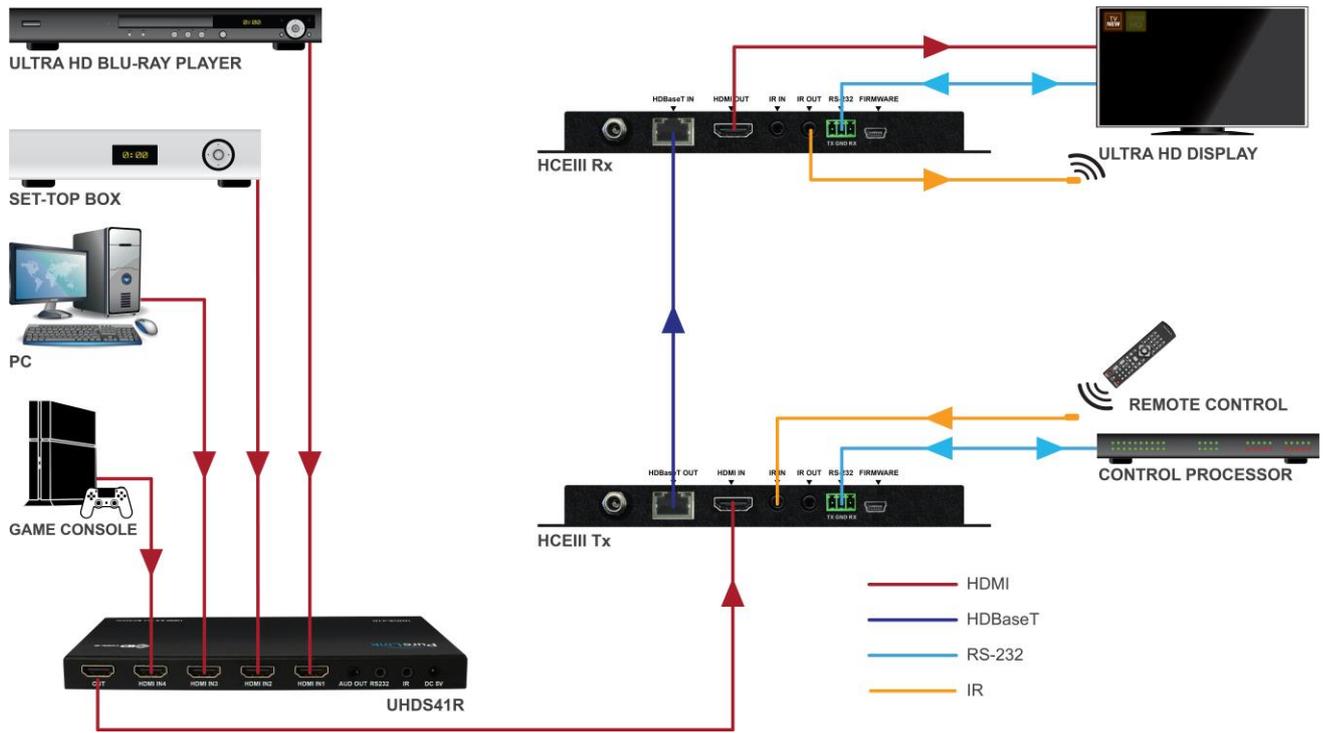
<Diagram 1>

2.2 Multiple HDMI sources with AV receiver and single display extension



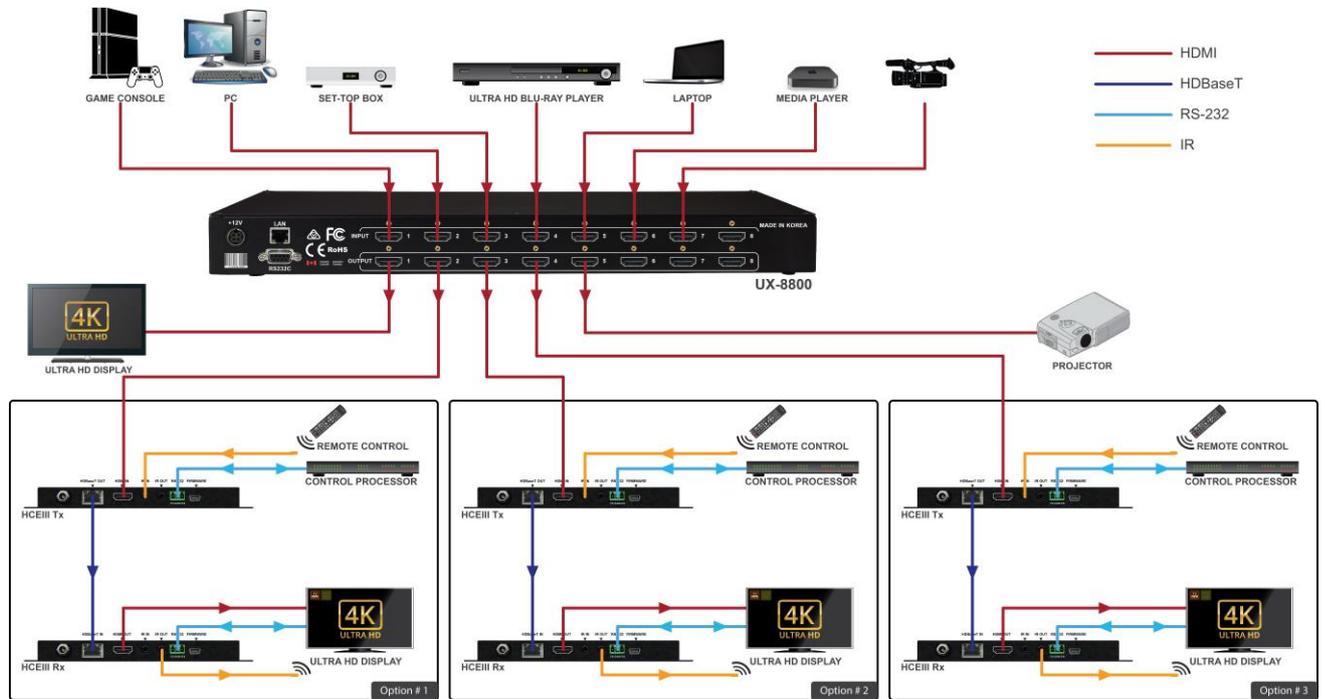
<Diagram 2>

2.3 Multiple sources with HDMI switcher and single display extension



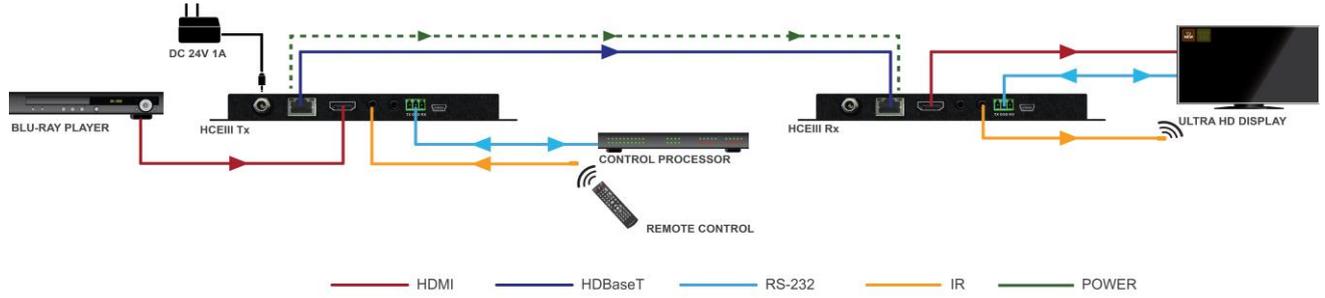
<Diagram 3>

2.4 Multiple sources with HDMI matrix switcher and multiple displays extension



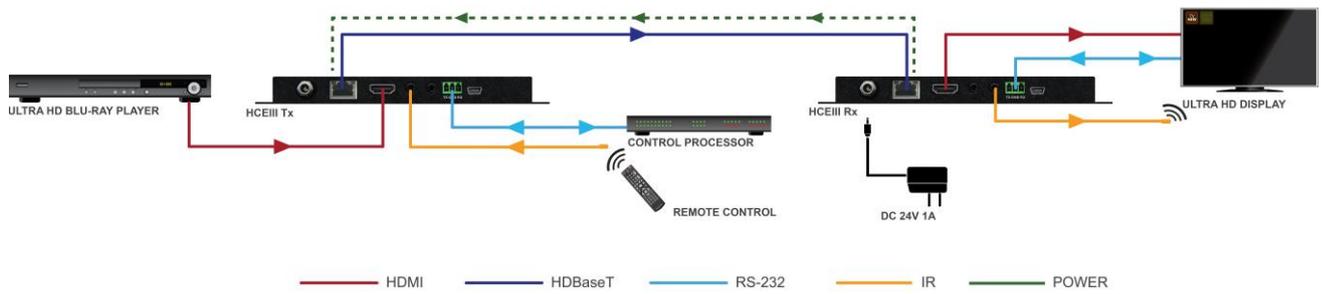
<Diagram 4>

2.5 POE example from Transmitter to Receiver



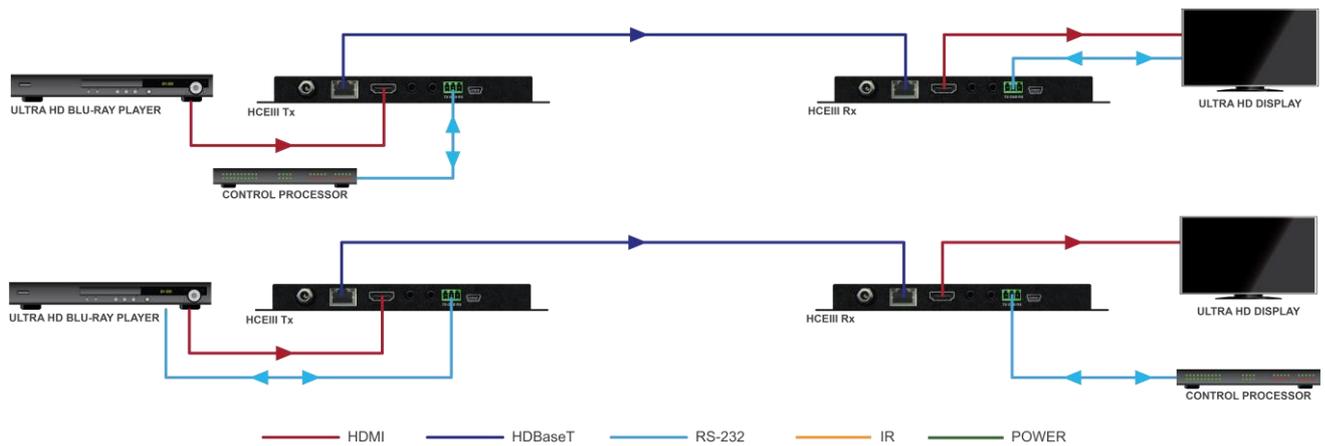
<Diagram 5>

2.6 POE example from Receiver to Transmitter



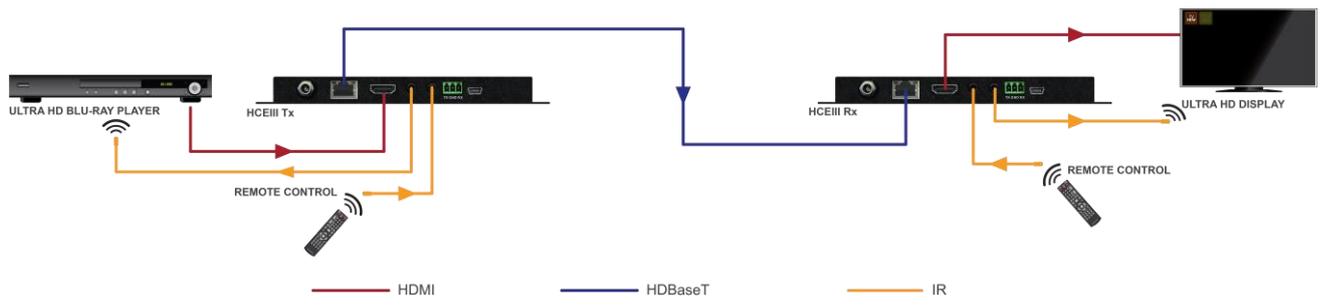
<Diagram 6>

2.7 RS232 bi-directional control example



<Diagram 7>

2.8 IR bi-directional control example



Chapter 3. Additional Information

3.1 Manufacturer's Warranty (3-Years)

PureLink warrants this HCE III Tx/Rx extender to be free from defects in workmanship and materials, under normal use and service, for a period of three (3) year from the date of purchase from PureLink or its authorized resellers.

If the product does not operate as warranted during the applicable warranty period, PureLink shall, at its option and expense, execute one of the following as necessary:

1. Repair the defective product or part
2. Deliver to customer and equivalent product or part to replace the defective item
3. Refund to customer the purchase price paid for the defective product

All products that are replaced become the property of PureLink. Replacement products may be new or reconditioned. Repaired or replacement products or parts come with a 90-day warranty or the remainder of the warranty period. Dtrovision shall not be responsible for any software, firmware, information, or memory data loss of contained in, stored on, or integrated with any products returned to Dtrovision for repair under warranty.

3.2 Customer Service

Any customer service inquiries can be submitted electronically through the Q&A form on our website (www.purelinkav.com).

For immediate assistance please contact us at (201) 488-3232 to reach our customer care or tech support team.