USER MANUAL

AC-EX70-UHD-BKT

70m (40m 4K) HDBaseT Extender w/ 4K60 4:2:0 support. Bi-Directional PoE, IR and RS232.

AvproEdge presents the quick deployment 4K HDBaseT Extender Set. This set is capable of delivering 4K signals over CAT cable up to 40 meters (131 ft) and Full HD signals up to 70 meters (230 ft). The AC-EX70-UHD-BKT features field critical features including, Bi-Directional PoH (Power Over HDBaseT), Bi-Directional RS232 for control.

Product Overview

Model Numbers:

- **AC-EX70-UHD-BT** ~ HDBaseT Transmitter w/IR and RS-232

- **AC-EX70-UHD-BR** ~ HDBaseT Receiver w/ IR and RS-232

Features

- HDMI 2.0
- 4K30 4:2:0
- HDCP 2.2 & Earlier
- CEC Pass Through
- 70M (230ft) on 1080P (Cat6a)
- Up to 40m (131ft) on 4K (Cat6a)
- 12V PoH (Power Over HDBaseT, only one Power Supply Needed)
- 3-20V protection circuit built in for safe IR transport
- Bi Directional RS232 Transport
- LED Status, Link, Power indication lights
- Use single UTP/STP LAN cable (CAT-6A) with substitute HDMI cable to achieve long distance transmission.
- Supports uncompressed PCM 2- Ch., LPCM 5.1 & 7.1, Dolby Digital, DTS, Dolby TrueHD, DTS HD-Master Audio, Atmos on HDMI

Whats in the box

- AC-EX70-UHD-BT (Transmitter)
- AC-EX70-UHD-BR (Receiver)
- 12V Power Supply (One supplied)
- 1 x IR Tx Unit
- 1 x IR Rx Unit
- 2x 3 Pin Terminal blocks for RS232 Ports
- Mounting Ear

VIDEO:

VIDEO RESOLUTIONS	UP TO 4K 60HZ 4:2:0 & 4K30 4:4:4
VESA RESOLUTIONS	UP TO DCI 4K (4096X2160)
COLOR SPACE	YUV (COMPONENT), RGB (CSC: REC. 601, REC. 709, BT2020, DCI, P3 D6500)
CHROMA SUBSAMPLING	4:4:4, 4:2:2, 4:2:0 SUPPORTED
DEEP COLOR	UP TO 16 BIT (1080) UP TO 12 BIT (4K)

AUDIO:

AUDIO FORMATS SUPPORTED HDMI	PCM 2.0 CH, LPCM 5.1 & 7.1, DOLBY DIGTAL, DTS 5.1, DOLBY DIGITAL PLUS, DOLBY TRUEHD, DTS-HD MASTER AUDIO, DTS-X, DOLBY ATMOS

DISTANCE:

HDBASET DISTANCE (4K & HDR)	40 METERS (131 FEET) (CAT 6A)
HDBASET DISTANCE (FULL HD)	70 METERS (230 FEET) (CAT 6A)
HDMI LEAD IN/OUT	UP TO 50 FEET (USING BULLET TRAIN HDMI)
HDMI LEAD IN/OUT (W/ AOC CABLE)	UP TO 130 FEET (USING BULLET TRAIN AOC)

OTHER:

BANDWIDTH	10.2 GBPS
HDCP	HDCP 2.2 AND EARLIER

PORTS:

HDMI (TX & RX)	TYPE A
HDBASET	RJ45 W/ POH FOR HDBASET RECEIVERS
IR RX	3.5MM STEREO (3 CONDUCTOR)
RS232	3 PIN TERMINAL BLOCK
POWER (TX & RX)	BARREL TYPE

ENVIRONMENTAL:

OPERATING TEMPRATURE	23 TO 125°F (-5 TO 51°C)
STORAGE TEMPERATURE	-4 TO 140°F (-20 TO 60°C)
HUMIDITY RANGE	5-90% RH (NO CONDENSATION)

POWER:

POWER CONSUMPTION (TOTAL)	9 WATTS MAX
POWER SUPPLY - MATRIX	INPUT: AC 100-240V ~ 50/60Hz OUTPUT: DC 12V 2A

DIMENSIONS:

DIMENSIONS (UNIT ONLY HEIGHT/DEPTH/WIDTH)	MM: 105 X 71 X 25 INCH: 4.14 X 2.82 X 0.98
DIMENSIONS (PACKAGED HEIGHT/DEPTH/WIDTH)	MM: 140 X 193 X 87 INCH: 5.5 X 7.6 X 3.4
WEIGHT (UNIT)	0.35 LBS (0.16 KG)
WEIGHT (PACKAGED)	0.6 LBS (0.27 KG)

*SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. MASS & DIMENSIONS ARE APPROXIMATE

■ The Transmitter

HDBaseT

RS232

Back
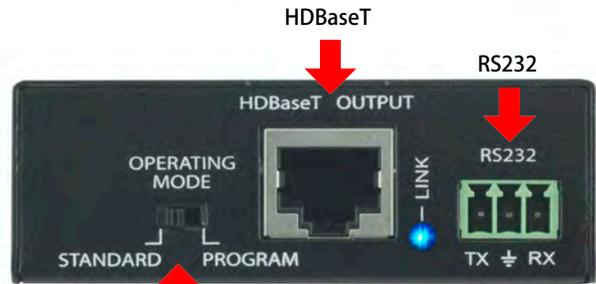
Program - SHOULD BE STANDARD WHEN USING

Front

Power Light

Indicator Troubleshooting Lights on the Transmitter:

POWER - On the front by power supply input: (Red) This is an indicator that the power is connected. There are only two states for light:

- Light Is On = Power supply is connected and functioning
- Light Is Off = Power supply is not connected or there is no power present. (In order to have power: check the power supply, USP, Outlet, etc...)

ACT (HDMI Status)- On front by HDMI Port: (Blue) This indicator shows that the HDMI source is connected. The states are:

- Light Is On (Flashing) = Sync w/ HDMI source & display is correct and solid

If the BLUE HDMI STATUS (ACT) LIGHT is flashing **AND YOU DO NOT** have picture, check the following:

1. The source. Plug it directly into the display to be sure it's functioning properly
2. Change the resolution of the source device to 1080P or 4K 60Hz 4:2:0
3. Swap HDMI cables between Source and Transmitter
4. Try a longer HDMI cable. Some HDMI cables do not sync well at shorter lengths (try 2 meters or longer)
5. Contact AVProEdge if these suggestions do not work

LINK - On the back next to th RJ45 (HDBT) Port: (Blue) This indicator shows that the AV HDBT link between the Tx and Rx is in tact. This light should ALWAYS be solid. If this light is flashing or not present attempt following:

1. Check the length. The maximum distances are 40m (131ft) on 4K and 70m (230ft) on 1080P.
2. Remove any coils of cable and make sure that there is not excess cabling.
3. Bypass all patch panels and punch-down blocks.
4. Re-terminate connectors. Sometimes, even if a cable tester indicates the run is valid, something may be slightly off. A continuity tester is not sufficient enough to determine if a cable will be capable of transmitting a HDBaseT signal.
5. Contact AvproEdge if these suggestions do not work.

■ The Receiver

Back
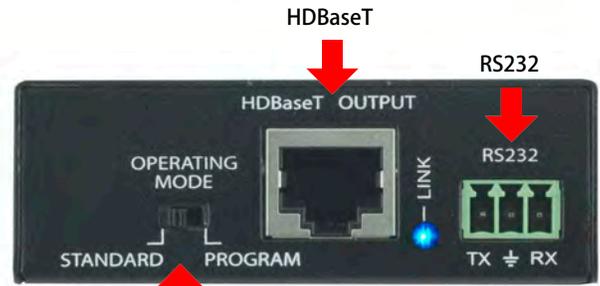
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RS232

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■ RS-232 Configuration

RS-232 can be used to pass control signals bi-directionally to & from any RS-232 compatible device. This is commonly used to route control signals in the following way:

1. Control System --> Display/Projector (ie, Power On/Off)
2. Display/Projector --> Control System (ie, Display Status, Volume Status etc...)
3. When ultra long-range serial communication is needed (think concerts, live events). Use the extender.

The unit comes with 3 pin connectors to allow for any wire an integrator would like. The pin out configuration Left=TX, Center=Ground, Right=RX and looks like this:
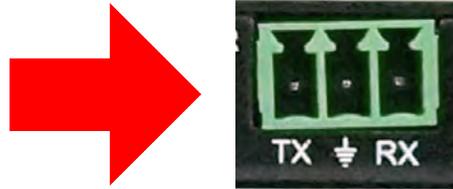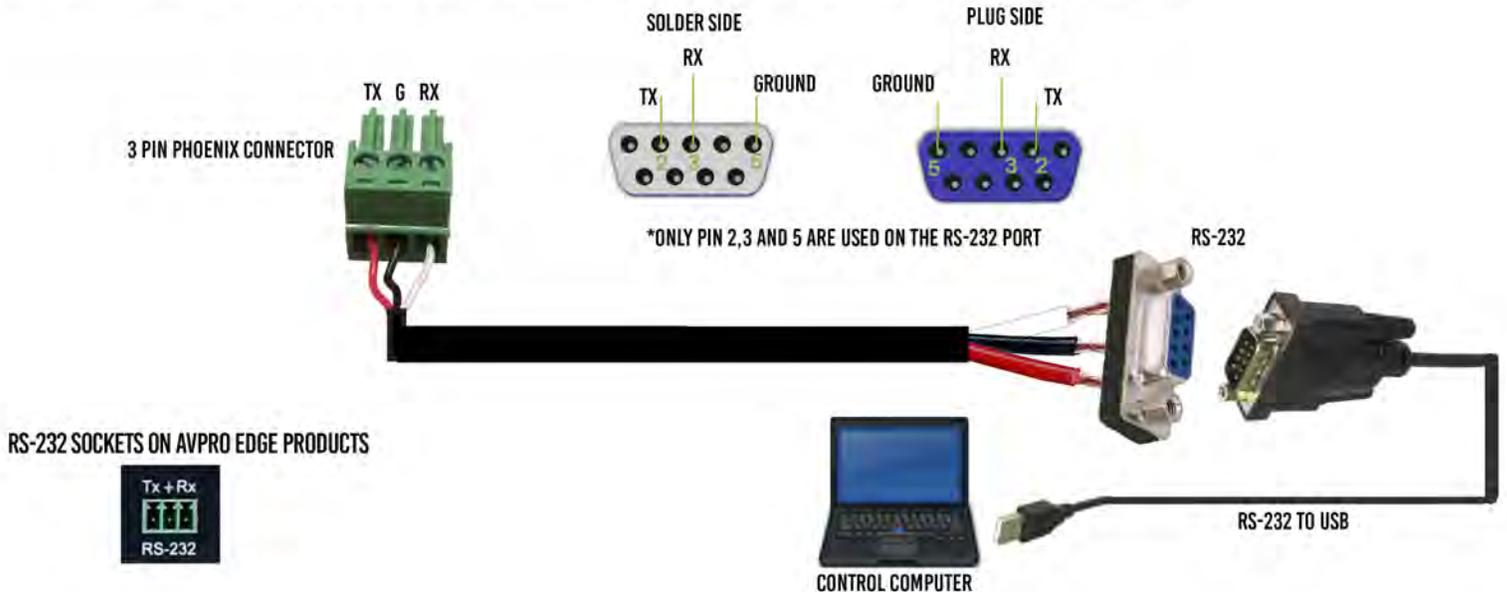
This is how the cable should look. If using the AC-CABLE-3.5-DB9F (Female) or AC-CABLE-3.5-DB9M (Male), the colors will be the same. With any other cable, please follow Tx, G, Rx as shown below. See RS-232 cable preparation diagram below

RS-232 CABLE FOR AVPRO EDGE

IN ORDER TO CONNECT YOUR COMPTER TO THE SWITCH BY RS-232 YOU NEED TO MAKE YOUR OWN CABLE WITH ONE END A PHOENIX CONNECTOR AND THE OTHER END A RS-232 PORT. YOUR COMPUTER DOESN'T HAVE A RS-232 INPUT, GET A USB CONVERTER (AS SHOWN BELOW), AND PLUG THE USB END TO ANY COMPUTER

SOLDER SIDE
RX
TX   GROUND

PLUG SIDE
RX
GROUND   TX

3 PIN PHOENIX CONNECTOR
TX G RX

*ONLY PIN 2,3 AND 5 ARE USED ON THE RS-232 PORT

RS-232

RS-232 SOCKETS ON AVPRO EDGE PRODUCTS

RS-232

RS-232 TO USB

CONTROL COMPUTER

AVProedge
AC-EX70-UHD-BKT **RS-232 CONTROL DIAGRAM**

RS-232 —
CAT 6A —

COMPUTER

RX ↓ TX   HDBaseT   OPERATING
RS-232   OUTPUT   MODE

AVProedge
AC-EX70-UHD-BT

PoH, 2-way IR & RS-232
70m/230ft @ 1080p
40m/131ft @ 4K

HDBT
TRANSMITTER

ACTIVE HDMI IN IR IN IR OUT POWER

RX ↓ TX   HDBaseT   OPERATING
RS-232   OUTPUT   MODE

AVProedge
AC-EX70-UHD-BR

PoH, 2-way IR & RS-232
70m/230ft @ 1080p
40m/131ft @ 4K

HDBT
RECEIVER

ACTIVE HDMI OUT IR IN IR OUT POWER

DISPLAY OR PROJECTOR

DEVICE

RS232
MATRIX
TX ↓ RX

3-PIN RS-232 PORT

3-PIN TERMINAL BLOCK
USED FOR RS-232 INPUTS

RX
GROUND
TX

DB9 FEMALE
SOLDER CONNECTOR

MALE DB9 TO USB
ADAPTER CABLE

RX
TX
GROUND

CONTROL DEVICE

ONLY PINS 2, 3, AND 5 ARE USED
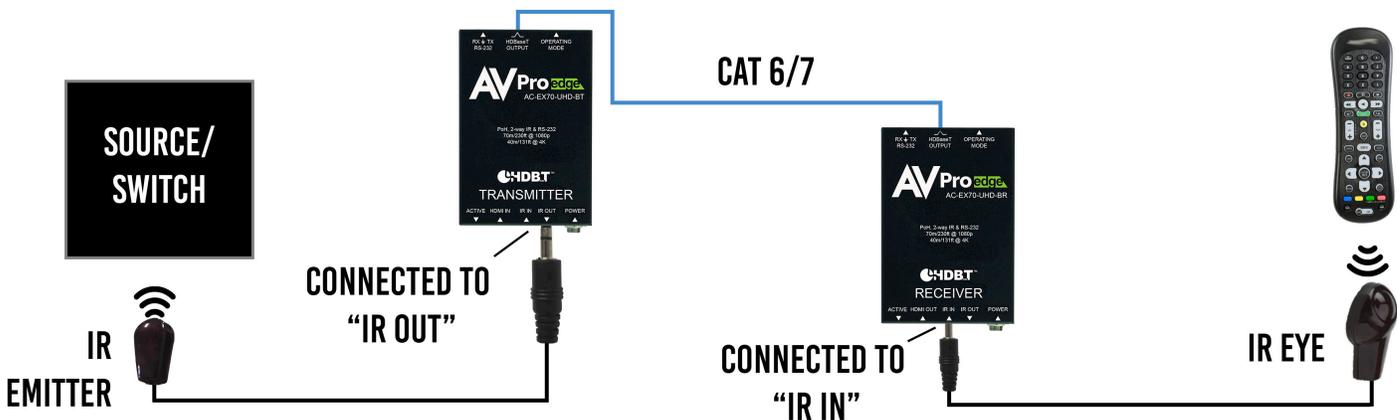
■ *IR Configuration*

IR can be used in two ways:

1. **From Rack (Using IR-EYE):** Plug an IR-Receiver Eye into the "IR IN" of the AC-EX70-UHD-BT Transmitter in order to pass infrared signals generated from a device or IR Remote.

2. **From Remote End:** Use an IR-Receiver Eye on the AC-EX70-UHD-BR Receiver (IR In Port) in order to send IR signals BACK to the rack and out of the TRANSMITTER IR Out Port with an emitter.

IR CONTROL - SENDING

CAT 6/7

TRANSMITTER

RECEIVER

DISPLAY/
PROJECTOR/
SINK

IR EYE

CONNECTED TO
"IR IN"

CONNECTED TO
"IR OUT"

IR EMITTER

IR CONTROL - RECEIVING

CAT 6/7

SOURCE/
SWITCH

TRANSMITTER

RECEIVER

IR
EMITTER

CONNECTED TO
"IR OUT"

CONNECTED TO
"IR IN"

IR EYE

*NOTE: For best results, only use the provided IR EYE's and Emitters

■ IR Connections to AC-EX70-UHD-BT (Transmitter)

VCC (+) → | IR SIGNAL
GROUND → |
IR SENSOR

SIGNAL → | NC / GROUND
EMITTER
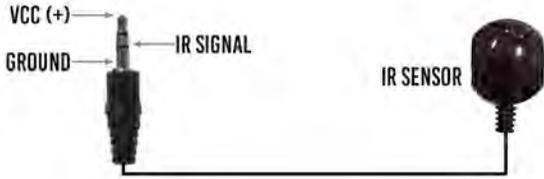
IR INPUT
(RECEIVER EYE)

IR OUTPUT (IR
EMITTER)

■ IR Connections to AC-EX70-UHD-BR (Receiver)

VCC (+) → | IR SIGNAL
GROUND → |
IR SENSOR

SIGNAL → | NC / GROUND
EMITTER

IR INPUT
(RECEIVER EYE)

IR OUTPUT (IR
EMITTER)

*NOTE: For best results, only use the provided IR EYE's and Emitters

■ *Troubleshooting*

- Verify Power - Pg. 5 & 6

- Verify Connections - Check that all cables are properly connected

    - o   TX Indicator Troubleshooting Lights - Pg. 5

    - o   RX Indicator Troubleshooting Lights - Pg.6

- IR Issues - Verify correct connections - P. 9-10

    - o   Visibly flashing Emitters may not function properly, try the IR Cables that come in the box if you are experiencing issues

- Still having issues, contact us

    - o   Support Direct -   +1-605-977-3477

▪ *Maintenance*

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

- Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
- Do not operate these products outside the specified temperature and humidity range given in the above specifications.
- Ensure there is adequate ventilation to allow this product to operate efficiently.
- Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive components that may be damaged by any mistreatment.
- Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

▪ *Damage Requiring Service*

The unit should be serviced by qualified service personnel if:

- The DC power supply cord or AC adaptor has been damaged
- Objects or liquids have gotten into the unit
- The unit has been exposed to rain
- The unit does not operate normally or exhibits a marked change in performance
- The unit has been dropped or the housing damaged

▪ *Support*

Should you experience any problems while using this product, first, refer to the Troubleshooting section of this manual before contacting Technical Support. When calling, the following information should be provided:

- Product name and model number
- Product serial number
- Details of the issue and any conditions under which the issue is occurring

▪ *Warranty*

If your product does not work properly because of a defect in materials or workmanship, AVProEdge (referred to as "the warrantor") will, for the length of the period indicated as below, (Parts/Labor (10) Years), which starts with the date of original purchase ("Limited Warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the "Labor" Limited Warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

This warranty extends to products purchased directly from AVPro or an authorized dealer. AVPro is not liable to honor this warranty if the product has been used in any application other than that for which it was intended, has been subjected to misuse, accidental damage, modification or improper installation procedures, unauthorized repairs or is outside of the warranty period. Please direct any questions or issues you may have to your local dealer before contacting AVPro.

Thank you for choosing AVProEdge!

Please contact us with any questions, we are happily at your service!

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