HDBASE70POE

HDMI/IR/RS232 PoE over Single Twisted Pair

Version: HDMI Twisted Pair PoE Extender_2014V1.3

NOTICE: Please read this user manual carefully before using this product. Pictures shown on this manual are for reference only; different model and specifications are subject to real product.

This manual is for operation instruction only, not for any maintenance usage. The functions described in this version are updated till April 2014. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

All product function is valid till 2014-04-28.

Update History

Version	Date	Update Content
1.0	2013.05.29	First version.
1.1	2013.11.29	Changed product design
1.2	2014.04.16	Modified package contents.
1.3	2014.04.28	Removed the built-in IR receiver and added collocation products.

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1. Introduction

1.1 Introduction to HDMI Twisted Pair PoE Extender

The KanexPro HDBASE70POE is a Transmitter-Receiver set made to extend UltraHD 4K, digital audio, wide-band IR and power over Ethernet (PoE) over a cost effective cat6a cable. It also supports computer resolutions up to 1920x1200, HD1080P/60 with Deep Color. This HDCP compliant extender routes distances up to 200 feet using HDBaseT™ Lite technology. As an added benefit to the systems integrator - the extender provides remote power from either side Tx or Rx over the twisted pair connection, eliminating the need for a separate power supply at the remote unit.

1.2 Features

- Two-way remote power: Tx to Rx or Rx to Tx using PoE (Power over Ethernet)
- Route uncompressed HDMI signals over Single CAT6a
- Extend up to 200 feet
- Supports HDMI 1.4, 4K, 3D, and full HD 1080p/60
- HDCP & EDID compliant
- CEC Pass-through
- Bi-directional IR & RS-232 for control
- Supports all frequencies IR pass through, 5V & 12V, Crestron and Xantech IR control signal compatible
- Front panel LED’s for signal & power
- Supports high bandwidth up to 10.2 Gbps
- Compatible with HDMMX modular matrix switchers
- Locking power supplies included
- Aluminum case enclosure with separate mounting ears

Note: Please use a CAT5e/6a cable with low impedance (Shielded twisted pair will be better and should be well grounded) for good transmission effect.

1.3 Package Contents

- 1 x HDMI Twisted Pair PoC Transmitter
- 1 x HDMI Twisted Pair PoC Receiver
- 4 x Mounting ears (Separated from HDMI Twisted Pair PoC Extender)
- 8 x Plastic cushions
- 2 x RS232 cables
- 8 x Screws
- 2 x Power adapter (DC 5V)
- 1 x User manual

Notes: Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Introduction of Product Appearance

2.1 Appearance of HDMI Twisted Pair PoC Transmitter

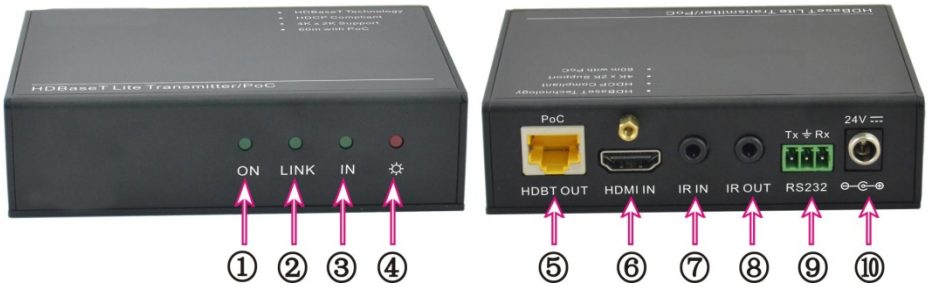

Figure 2-1 Appearances of HDMI Twisted Pair PoC Transmitter

1) ON: Working status indicator of this device. When the device works fine, this green LED will keep blinking. And it will get off when the device stops work.
2) LINK: Twisted Pair Link status indicator, green LED. It will keep on when connection is successful.
3) IN: When connected with devices support HDCP and work normally this LED will keep on. If devices not support HDCP, this green LED will blink.
4) POWER LED: LED indicator of power. When connect with power, red LED will keep on.
5) HDBT OUT: Connect to the HDBT IN port of HDMI Twisted Pair PoC Receiver with a CAT5e cable.
6) HDMI IN: Connect to HDMI source.
7) IR IN: Connect with IR receiver, the IR signal received from this port can only send out in HDMI Twisted Pair PoC Receiver.
8) IR OUT: Connect with IR sender, the sending IR signal are received from HDMI Twisted Pair PoC Receiver.
9) RS232: RS232 connector.
10) 24V DC: Connect with power supply (Not necessary if HDMI Twisted Pair PoC Receiver connects with power).

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2.2 Appearance of HDMI Twisted Pair PoC Receiver

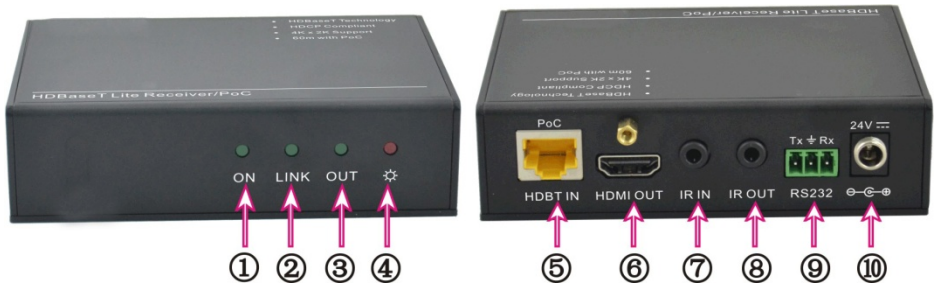


Figure 2-2 Appearances of HDMI Twisted Pair PoC Receiver

1) ON: Working status indicator of this device. When the device works fine, this green LED will keep blinking. And it will get off when the device stops work.
2) LINK: Twisted Pair Link status indicator, green LED. It will keep on when connection is successful.
3) OUT: When connected with devices support HDCP and work normally this LED will keep on. If devices not support HDCP, this green LED will blink.
4) POWER LED: When connect with power, red LED will keep on.
5) HDBT IN: Connect to the HDBT OUT port of HDMI Twisted Pair PoC Transmitter with a CAT5e cable.
6) HDMI IN: Connect to HDMI display device.
7) IR IN: Connect with IR receiver, the IR signal received from this port can only send out in HDMI Twisted Pair PoC Transmitter.
8) IR OUT: Connect with IR emitter, the sending IR signal are received from HDMI Twisted Pair PoC Transmitter.
9) RS232: RS232 connector.
10) 24V DC: Connect with power supply (Not necessary if HDMI Twisted Pair PoC Transmitter connects with power).

Note: Pictures shown on this manual are for reference only, different model and specifications are subject to real product.

3. System Connection

3.1 Usage Precautions

1) System should be installed in a clean environment and has a prop temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated and safety.

3) All devices should be connected before power on.

3.2 System Diagram

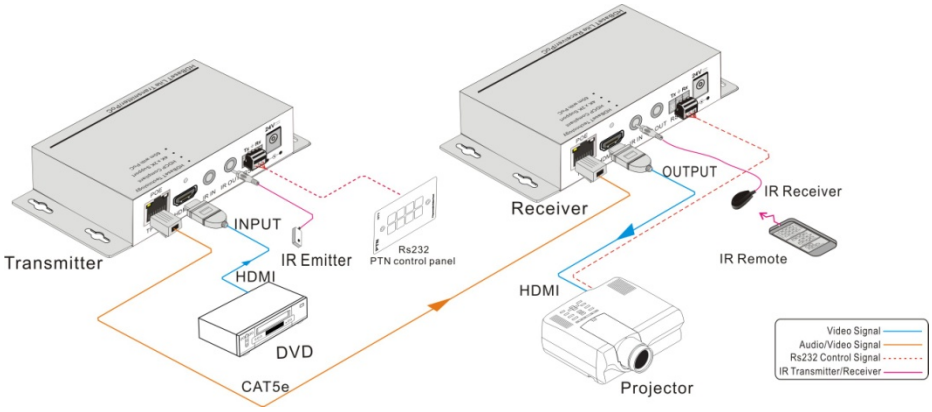


Figure 3-1 System Connection Diagram

3.3 Connection Procedure

Step1. Connect HDMI source (such as Blue-ray DVD) to HDMI IN port of transmitter HDMI Twisted Pair PoC Transmitter with HDMI cable.

Step2. Connect HDBT OUT port of HDMI Twisted Pair PoC Transmitter and HDBT IN port of HDMI Twisted Pair PoC Receiver, with single CAT5e/CAT6 cable.

Step3. Connect HDMI displayer (such as HDTV) to HDMI OUT port of HDMI Twisted Pair PoC Receiver with HDMI cable.

Step4. Both HDMI Twisted Pair PoC Transmitter and HDMI Twisted Pair PoC Receiver have IR IN and OUT. When one end is used as an IR receiver, the signal sent from the end can only be transmitted via the other end.
For example: When “IR IN” of HDMI Twisted Pair PoC Transmitter connects with an IR receiver, the IR transmitter must connect to IR OUT of HDMI Twisted Pair PoC Receiver.

Step5. Connect the RS232 port of the devices to be controlled and the receiver or the transmitter.

Step6. Connect with DC24V power adaptor(s) (One is enough if any end of HDMI

Twisted Pair PoC Transmitter and HDMI Twisted Pair PoC Receiver is connected with adapter as its PoC function).

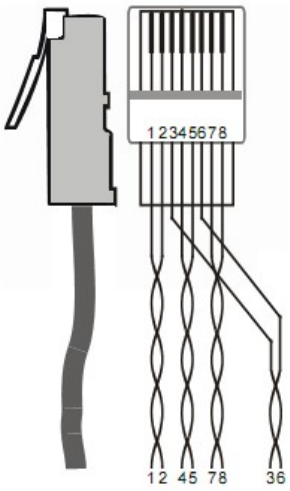
3.4 Application

HDMI Twisted Pair PoC Extender has a good application in various occasions, such as computer realm, monitoring, big screen displaying, meeting room, education and bank & securities institution etc.

3.5 Twisted Pair Cable Connection

The twisted pair used in this extender MUST be a straight-through cable.

TIA/EIA T568A			TIA/EIA T568B	
Pin	Cable color		Pin	Cable color
1	green white		1	orange white
2	green		2	orange
3	orange white		3	green white
4	blue		4	blue
5	blue white		5	blue white
6	orange		6	green
7	brown white		7	brown white
8	brown		8	brown
1st Ground	4--5		1st Ground	4--5
2nd Ground	3--6		2nd Ground	1--2
3rd Group	1--2		3rd Group	3--6
4th Group	7--8		4th Group	7--8



Notice: Cable connectors MUST be metal one, the shielded layer of cable MUST be connected to the connector's metal shell, to make a better transmission.

3.6 Collocation Products

HDMI Twisted Pair PoC Extender usually work together with other devices to extend the transmission distance of HDMI/IR/RS232 signal. Here are the most common collocation products.

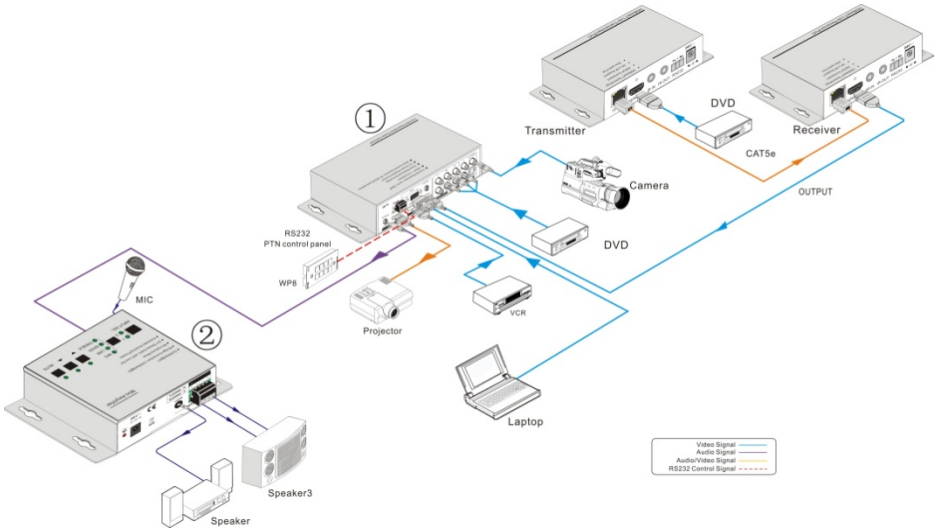


Figure 3-2 Collocation Products Connection Diagram

Description:

1) Mini scaler switcher

- 6 video Inputs: 2 x HDMI, 1 x VGA, 1 x YPbPr, 1 x C-video & 1 x S-video, and upscale to HDMI output at 1080P.
- Support VGA resolutions: 640x480, 800x600, 1024x768, 1280x1024, 1280x768, 1360x768@60Hz, and 1920x1080.
- Built-in PAL/NTSC and audio format automatic identification technologies, with good video and audio processing technology for high performance.
- 3 audio outputs: HDMI embedded audio, 3.5mm stereo audio and Coaxial (SPDIF).
- Output display H/V size, position, image color adjustable and output image freezable.
- Built-in breakpoint memory and power-off protection function.

2) Mini digital amplifier

- 2x20Watt@4Ohm as the default amplifier output.
- Bridge connection function. User can switch the amplifier to be 1x40Watt@8Ohm by bridge connection.
- 48V phantom power to support condenser microphone.
- MIC port can support balance/unbalance signal, suppress the external noise effectively.

4. Specification

Model / Spec	HDMI Twisted Pair PoE Transmitter	HDMI Twisted Pair PoE Receiver
Input		
Input Signal	1 HDMI, 1 IR & 1 RS232	1 IR, 1 RJ-45 & 1 RS232
Input Connector	HDMI female, 3.5mm mini jack, 3p captive screw connector	3.5mm mini jack, RJ-45, 3p captive screw connector
Video Signal	HDMI1.4	HDMI1.4
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 RJ-45, 1 IR, 1 RS232	1 HDMI, 1 IR, 1RS232
Output Connector	RJ-45, 3.5mm mini jack, 3p captive screw connector	HDMI female, 3.5mm mini jack, 3p captive screw connector
Video signal	HDMI1.4	HDMI1.4
Transmission Mode	HD Base T	
General		
Resolution Range	800x600 ~ 1920x1200	
Transmission Distance	Max distance 70M	
Gain	0dB ~ 10dB@100MHz	
Differential Phase Error	±10° @ 135MHz_100M	
SNR	>70dB@ 100MHz-100M	
Bandwidth	10.2Gbps	
Return Lost	＜-30dB@5KHz	
THD	＜0.005%@1KHz	
HDMI Standard	Support HDMI1.4 and HDCP	
Min. ～Max. Level	＜0.3V ~ 1.45Vp-p	
Impedance	75Ω	
Temperature	-20 ~ +70□	
Humidity	10% ~ 90%	
Power Supply	Input: 100VAC~240VAC, 50/60Hz Output: DC 24V, 1.25A	
Power Consumption	9.6W	
Case Dimension	W110.16xH28x D77 mm	W113.03xH28x D77 mm
Net Weight	0.5Kg	0.5Kg

NOTE: All nominal levels are at ±10%.

5. Panel Drawing

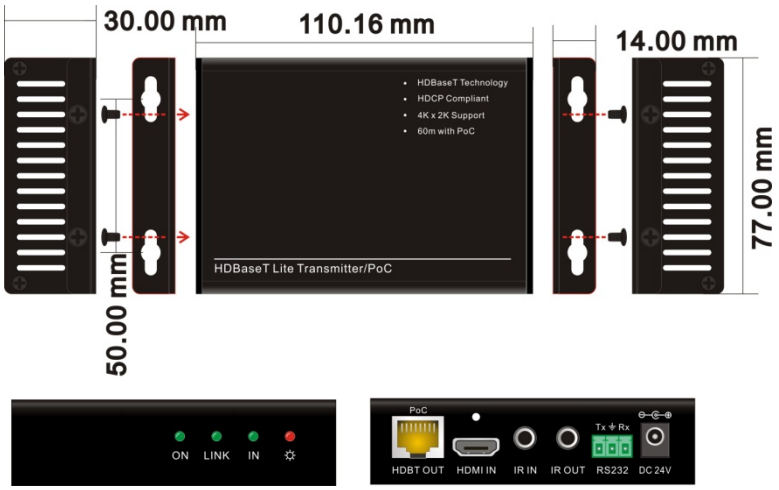


Figure 5-1 Panel drawing of HDMI Twisted Pair PoETransmitter

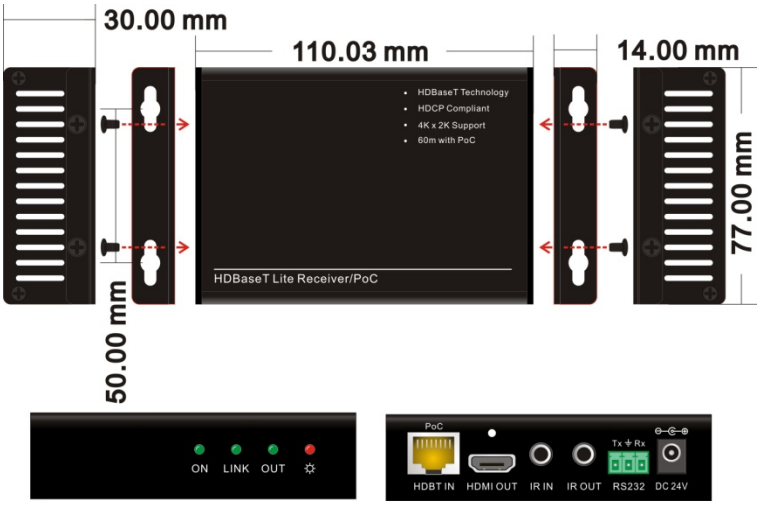


Figure 5-1 Panel drawing of HDMI Twisted Pair PoE Receiver

6. Troubleshooting & Maintenance

1) When images of terminal unit output with ghost, such as the projector output with ghost. Generally this is not a unit faulty; an incorrect setting on the projector or a bad quality of cable may cause this. Please check the projector's setting or try another high quality connection cable.

2) When there is a color losing or no video signal output, please check the input and output end connections of the cables.

3) When user cannot control the extender by computer through its COM port, please check the COM port number in the software and make sure the COM port is in good condition.

4) When switching, there is no output image:

- Check with oscilloscope or multimeter if there is any signal at the input end. If there is no signal input, it may be the input connection cord broken or the connectors loosen.
- Check with oscilloscope or multimeter if there is any signal at the output end. If there is no signal output, it may be the output connection cord broken or the connectors loosen.
- If it is still the same after the above checking, maybe there is something wrong in the extender. Please send it to the dealer for fixing.

5) If the static becomes stronger when connecting the video connectors, it probably due to bad grounding, please check the grounding and make sure it connected well, otherwise it would damage the extender.

7. Safety Operation Guide

In order to guarantee the reliable operation of the equipment's and safety of the staff, please abide by the following proceeding in installation, using and maintenance:

1) The system must be earthed properly. Do not use two blades plugs and ensure the alternating power supply ranged from 100v to 240v and from 50Hz to 60Hz.

2) Do not put the device in a place of too hot or too cold.

3) As the power generating heat when running, the working environment should be maintained fine ventilation, in case of damage caused by overheat.

4) Cut off the general power switch in humid weather or left unused for long time.

5) Before following operation, ensure that the alternating current wire is pull out of the power supply:

- ●Take off or reship any components of the equipment.
- ●Take off or rejoin any pin or other link of the equipment.

6) As to non-professional or without permission, please DO NOT try to open the casing of the equipment, DO NOT repair it on your own, in case of accident or increasing the damage of the equipment.

7) DO NOT splash any chemistry substance or liquid in the equipment or around.

8. After-sales Service

1) If there appear some problems when running HDMI Twisted Pair PoC Extender, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

2) You can email to our after-sales department or make a call, please tell us the following information about your cases.
- Product version and name.
- Detailed failure situations.
- The formation of the cases.

3) We offer products for all three-year warranty, which starts from the first day you, buy this product (The purchase invoice shall prevail).

4) Any problem is same with one of the following cases listed; we will not offer warranty service but offer for charge.
- Beyond the warranty.
- Damage due to incorrectly usage, keeping or repairing.
- Damage due to device assembly operations by the maintenance company non-assigned.
- No certificate or invoice as the proof of warranty.
- The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
- Damage caused by force majeure.

5) This document is just a user manual released with the product, not a quality guarantee. Any corrections or new function introductions added, we will update this document without further notice.

Remarks: For any questions or problems, please try to get help from your local distributor.

9. Warranty

KanexPro® warrants that (a) its products (the “Product”) will perform greatly in agreement with the accompanying written materials for a period of 36 months from the date of receipt (3 years) and (b) that the product will be free from defects in materials and workmanship under normal use and service for a period of 3 years.

B. CUSTOMER REMEDIES

KanexPro’s entire liability and Customer’s exclusive remedy shall be, at KanexPro option, either return of the price paid for the product, or repair or replacement of the Product that does not meet this Limited Warranty and which is returned to KanexPro with a copy of customers’ receipt. This Limited Warranty is void if failure of the Product has resulted from accident, abuse, or misapplication. Any replacement Product will be warranted for the remainder of the original warranty period of 3 years, whichever is longer.

C. NO OTHER WARRANTIES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, KANEX DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE PRODUCT AND ANY RELATED WRITTEN MATERIALS. THIS LIMITED WARRANTY GIVES CUSTOMERS SPECIFIC LEGAL RIGHTS. CUSTOMERS MAY HAVE OTHER RIGHTS DEPENDING ON THE JURISDICTION.

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TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL KANEX BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES FOR PERSONAL INJURY, LOSS OF BUSINESS PROFITS, BUSINESS INTERRRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THIS PRODUCT, EVEN IF KANEX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

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