

KanexPro®

EXT-HDBT70M

HDBaseT Extender



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Version: EXT-HDBT70M_2017V1.1

Preface

Read this user manual carefully before using this product. Pictures shown in this manual is for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till June 2017. 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 2017-6-15.

Trademarks

Product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without the prior written consent.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Introduction

1.1 Introduction to EXT-HDBT70M

The KanexPro EXT-HDBT70M is a compact sized extender set consisting of a transmitter and receiver. It uses HDBaseT™ technology to transmit uncompressed, high-resolution 1080p/ 4K signals from transmitter to the receiver via a CAT5e/CAT6a cable at a distance of up to 70/40m. Moreover, EXT-HDBT70M supports CEC, bi-directional RS232 & IR control, and bi-directional PoH (power over HDBaseT) function.

1.2 Features

- Support Full HD: Delivers high resolution image (1080p@60Hz@48 b/pixels/3D/4Kx2K).
- Maximum transmission distance is 70m for 1080p and 40m for 4Kx2K over single CAT5e/CAT6a cable
- High Bandwidth: 10.2Gps.
- HDTV Compatible, use HDMI 1.4 and HDCP2.2 compliant.
- Support CEC/IR/RS232 pass-through.
- Supports Bi-directional PoH function.
- Bi-directional RS232/IR control.
- UseS HDBaseT technology to transmit & extend over CATx
- LED indicators show work status.

1.3 Package Contents

Transmitter	Receiver
<ul style="list-style-type: none"> ▪ 2 x Transmitter Mounting Ears ▪ 4 x Mounting Screws ▪ 4 x Plastic Cushions ▪ 1 x RS232 Cable ▪ 1 x IR Emitter ▪ 1 x Power Adaptor(24V, 1.25A) ▪ 1 x User manual 	<ul style="list-style-type: none"> ▪ 2 x Receiver Mounting Ears ▪ 4 x Mounting Screws ▪ 4 x Plastic cushions ▪ 1 x RS232 Cable ▪ 1 x IR Receiver ▪ 1 x User manual


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

2. Panel Description

2.1 Transmitter




No.	Name	Description
①	LINK	HDBT Link status indicator: <ul style="list-style-type: none"> OFF: No Link GREEN:Link Successful Blinking GREEN: Link abnormal
②	HDCP	HDCEP compliant indicator <ul style="list-style-type: none"> OFF: No HDMI traffic (no picture) GREEN: Traffic with HDCP. Blinking GREEN: Traffic without HDCP
③	Power	OFF: No power; RED: DC power present.
④	RS232	RS232 connector.
⑤	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port
⑥	IR OUT	Connect with 5V IR emitter to send infrared signal, work with far-end IR IN port
⑦	HDMI IN	Connect with HDMI source
⑧	HDBT OUT	Connect to the HDBT IN socket on the Receiver via CAT5e/ CAT6a cable, support bi-directional PoH function.
⑨	DC 24V	Connect with power supply (Not necessary if receiver connects with power adaptor).

 Pictures shown in this manual are only for reference.

2.2 Receiver



No.	Name	Description
①	LINK	HDBT Link status indicator: <ul style="list-style-type: none"> OFF: No Link GREEN: Link Successful Blinking GREEN: Link abnormal
②	HDCP	HDCEP compliant indicator <ul style="list-style-type: none"> OFF: No HDMI traffic (no picture) GREEN: Traffic with HDCP. Blinking GREEN: Traffic without HDCP
③	Power	OFF: No power; RED: DC power present.
④	RS232	RS232 connector.
⑤	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port
⑥	IR OUT	Connect with 5V IR emitter to send infrared signal, work with far-end IR IN port
⑦	HDMI OUT	Connect with HDMI display
⑧	HDBT IN	Connect to the HDBT OUT socket on the transmitter via CAT5e/ CAT6a cable.
⑨	DC 24V	Connect with power supply (Not necessary if transmitter connects with power adaptor).

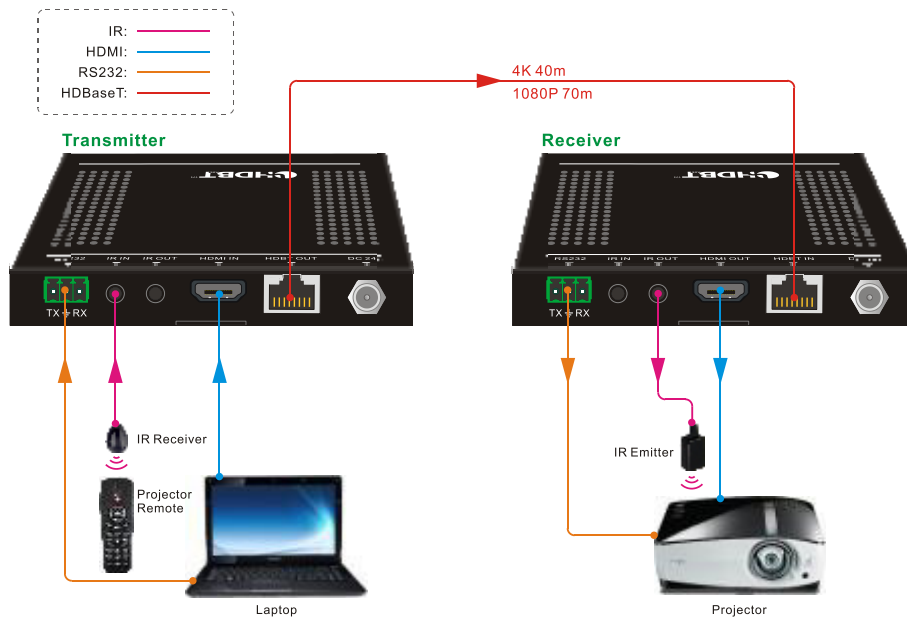
 Pictures shown in this manual are only for reference.

3. System Connection

3.1 Usage Precautions

- System should be installed in a clean environment and has a prop temperature and humidity.
- All of the power switches, plugs, sockets and power cords should be insulated and safety.
- All devices should be connected before power on.
- Use shielded straight-thru CAT5e/CAT6a cable with TIA/EIA T568B terminations for good transmission effect.

3.2 System Diagram



3.3 Connection Procedure

- Step1.** Connect HDMI source (such as Laptop) to HDMI IN port of transmitter with HDMI cable.
- Step2.** Connect HDBT OUT port of transmitter and HDBT IN port of receiver, with single CAT5e/CAT6a cable.
- Step3.** Connect HDMI displayer (such as HDTV) to HDMI OUT port of receiver with HDMI cable.

Step4. Both transmitter and 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 transmitter connects with an IR receiver, the IR emitter must connect to IR OUT of 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 Transmitter or Receiver is connected with adapter as its PoH function).

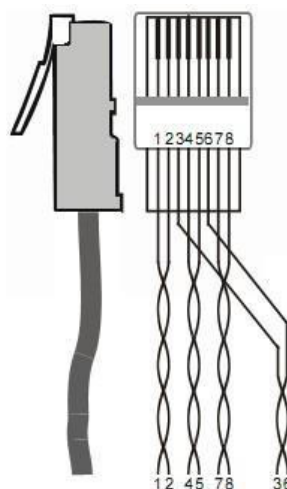
3.4 Applications

Ideal for use in digital signage applications, healthcare AV, control rooms, educational facilities, airports, commanding centers and residential - home theater.

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.

4. Specification

Transmitter	
Input Signal	(1) HDMI, (1) IR; (1) RS232
Input Connector	(1) HDMI female; (1) 3.5mm mini jack; (1) 3p captive screw connector
Output	(1) RJ-45, (1) IR, (1) RS232
Output Connector	(1) RJ-45; (1) 3.5mm mini jack; (1) 3-pin captive screw connector
Audio	(1) Digital audio, transmit through HDMI audio
Receiver	
Input Signal	(1) IR; (1) RJ-45; (1) RS232
Input Connector	(1) 3.5mm mini jack; (1) RJ-45; (1) 3p captive screw connector
Output	(1) HDMI, (1) IR, (1) RS232
Output Connector	(1) HDMI female; (1) 3.5mm mini jack; (1) 3p captive screw connector
General	
Resolution Range	640x480@60Hz~4K×2K@30Hz
Transmission Mode	HDBaseT
Transmission Distance	1080p ≤ 70m; 4Kx2K ≤ 40m
Bandwidth	10.2Gbps
HDMI Standard	Support HDMI1.4 and HDCP2.2
Impedance	75Ω
Temperature	0~ 50℃
Humidity	10% ~ 90%
External Power Supply	Input: 100VAC~240VAC, 50/60Hz; Output: DC 24V, 1.25A
Power Consumption	14w (max)
Dimension (W*H*D)	115mmx16.2mm x109mm
Net Weight	Transmitter: 193g; Receiver: 196g

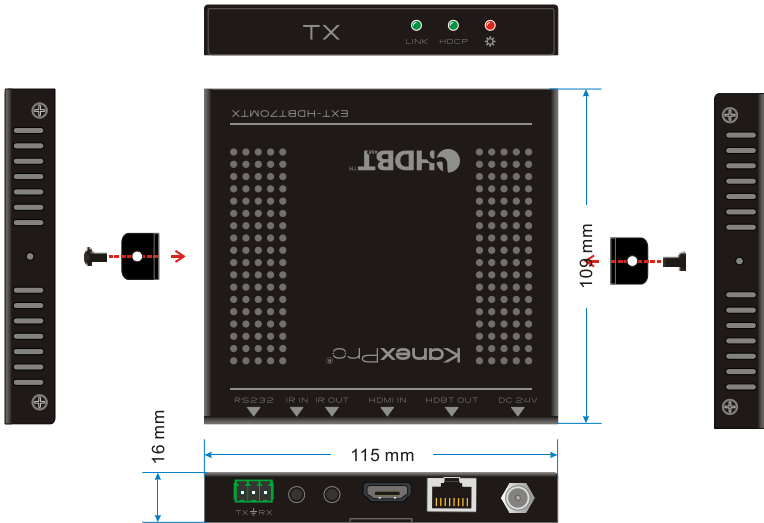
Note: All nominal levels are at ±10%.

Supported Resolution:

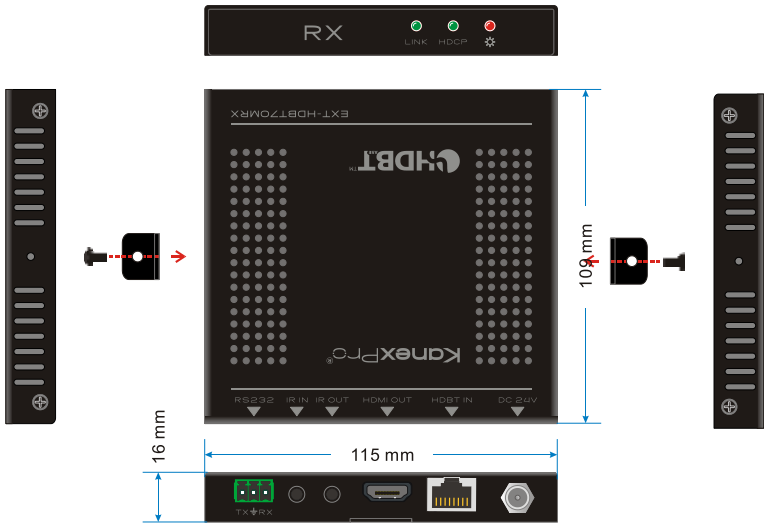
Aspect Ratio	Resolution	Refresh Rate
4Kx 2K	4096x2160	30Hz
	3840x2160	24/25/30Hz
16:9	1920x1080	60Hz
	1600x900	60Hz
	1366x768	60Hz
	1280x720	60Hz
	1024x576	60Hz
16:10	1920x1200	60Hz
	1680x1050	60Hz
	1360x768	60Hz
	1280x800	60Hz
4:3	1600x1200	60/65/70/75/85Hz
	1280x1024	60/75/85/96Hz
	1024x768	60/70/75/85Hz
	800x600	56/60/72/75/85Hz
	640x480	60/72/75Hz

Note: EXT-HDBT70M supports 4K HDMI signals up to 30Hz, please adopt quality HDMI cables compliant with the latest HDMI specs for reliable transmission.

5. Panel Drawing



5-1 Transmitter



5-2 Receiver

6. Troubleshooting & Maintenance

- **No image on display:**

- Ensure that the display device has been set to the correct input.
- Ensure that the HDMI cables used for both the source/transmitter and the receiver/display are properly connected and are working. Test the HDMI cables directly from a source to display and ensure their operation.
- Ensure that the CAT5e/CAT6a cable has not been damaged and that it has been terminated correctly with T568B on both ends. A temporary length of CAT5e/Cat6 can be used for testing to ensure that the devices are all compatible and working properly.
- Ensure proper grounding of the power supply.
- Known issues with HDMI 1.2 source devices:
- Older compatibility (HDMI 1.2) may result in HDBaseT transmission issues. Please contact Technical Support of your director for a solution to these issues.

- **Color lose or poor picture quality:**

- Ensure that the HDMI cables used for both the source and transmitter and the receiver and display are properly connected and are of good quality. Test the HDMI cables directly from a source to display and ensure their picture quality.
- Ensure proper grounding of the power supply.
- If the static becomes stronger or picture quality becomes worse when connecting the video connectors, this may be due to improper grounding.
- Check the grounding and make sure all the components are properly grounded to a common ground. Improper grounding may cause damage to the receiver.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical assistance at support@kanexpro.com

7. After-sales Service

If there appear some problems when running the device, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

- **Product Limited Warranty:** We warrants that its products will be free from defects in materials and workmanship for **three years**, which starts from the first day the product leaves warehouse (check the SN mark on the product).

Proof of purchase in the form of a bill of sale or receipted invoice must be presented to obtain warranty service.

- **What the warranty does not cover:**

- ✓ Warranty expiration.
- ✓ Factory applied serial number has been altered or removed from the product.
- ✓ Damage, deterioration or malfunction caused by:
 - Normal wear and tear
 - Use of supplies or parts not meeting our specifications
 - 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.
 - Servicing not authorized
 - Any other causes which does not relate to a product defect
- ✓ Delivery, installation or labor charges for installation or setup of the product

- **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.

- ✓ Product version and name.
- ✓ Detailed failure situations.
- ✓ The formation of the cases.

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

8. Warranty

A. LIMITED 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 (3 full years) from the date of receipt 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, KanexPro 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.

D. NO LIABILITY FOR DAMAGES

To the maximum extent permitted by applicable law, in no event shall KanexPro be liable for any damages whatsoever (including without limitation, special, incidental, consequential, or indirect damages for personal injury, loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use this product, even if KanexPro has been advised of the possibility of such damages.

KanexPro®

1405 pioneer street

Brea, CA 92821