

# User Manual



## TP70A HDBaseT Extender



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Version: TP70A\_2016V1.0

## 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 December 2016. 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 2016-12-2.**

## 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 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 A 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.



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## 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 TP70A

TP70A is a mini-size extender set consists of a transmitter and a receiver. DMI signals are input into the transmitter and HDBaseT technology is used to transmit high-resolution 1080p/ 4k signal to the receiver up to 70/40 m via a Cat5e/Cat6A cable. The receiver then outputs the HDMI signal. Bi-directional IR and PoC power is also transmitted across the Cat5e/Cat6A cable.

The set also supports ARC, which enables audio upstreaming from display to speakers.

## 1.2 Features

- HDMI1.4 compliant, support full HD, delivers high-resolution signal (max at 4Kx2K)
- Maximum transmission distance is 70m for 1080p and 40m for 4Kx2K over single CAT5e/CAT6A cable
- High Bandwidth: 10.2Gps.
- Compliant with HDCP1.4
- Uses HDBaseT technology for extended capability and reliability
- Support bi-directional PoC
- Support ARC
- Bi-directional IR control

## 1.3 Package List

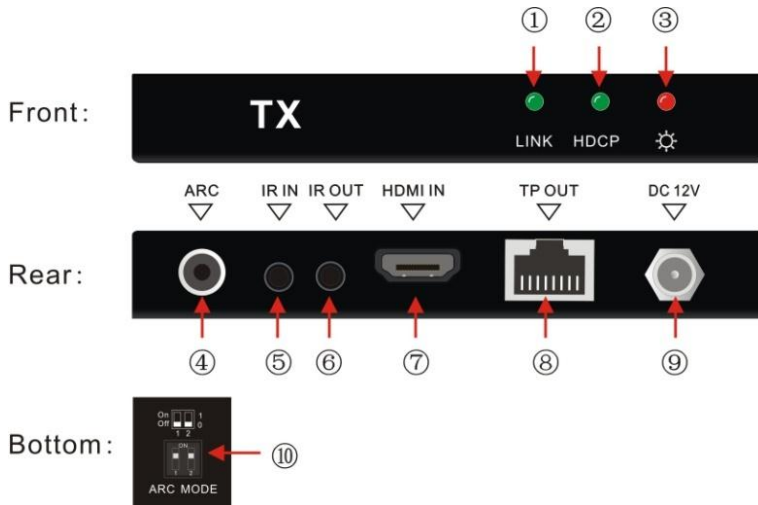
- 1 x TP70A (including TX and RX)
- 4 x Mounting Brackets
- 4 x Screws
- 8 x Rubber Feet
- 1 x Power Adapters (DC 12V 1A)
- 2 x IR Emitters (5V, optional)
- 2 x IR Receivers (5V, with carrier, optional)
- 1 x User Manual



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

## 2. Panel Description

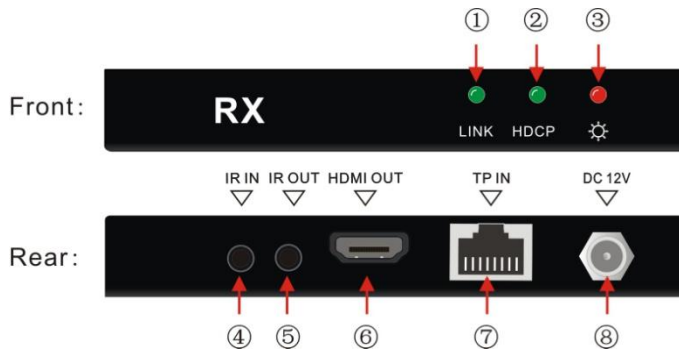
### 2.1 TP70AT (TX)



**Figure 2- 1 Panel Description of TP70AT**

No.	Name	Description
①	LINK	HDBT Link status indicator, lights when the transmitter& receiver are linked and communicating
②	HDCP	HDCP compliant indicator <ul style="list-style-type: none"> <li>➢ Lights when input signal is with HDCP</li> <li>➢ Blinks when the input signal is not with HDCP</li> <li>➢ Turns off when there is no input</li> </ul>
③	Power	Illuminates red when powered on
④	ARC	Output port for ARC audio
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	TP OUT	Connect to the TP IN socket on the HDBaseT Receiver via CAT5e/ CAT6A cable, support bi-directional PoC
⑨	DC 12V	Insert a DC 12V power adapter here, equipped with faulty power protection, protect the unit from burnt when inserted power adapter with wrong specification
⑩	ARC	Dial switch for ARC mode

## 2.2 TP70AR (RX)



**Figure 2- 2 Panel Description of RX**

No.	Name	Description
①	LINK	HDBT Link status indicator, lights when the transmitter& receiver are linked and communicating
②	HDCP	HDCP compliant indicator <ul style="list-style-type: none"> <li>➤ Lights when output signal is with HDCP</li> <li>➤ Blinks when the output signal is not with HDCP</li> <li>➤ Turns off when there is no output</li> </ul>
③	Power	Illuminates red when powered on
④	IR IN	Connect with 5V IR receiver (with carrier) to collect infrared signal, work with far-end IR OUT port
⑤	IR OUT	Connect with 5V IR Emitter to send infrared signal, work with far-end IR IN port
⑥	HDMI OUT	Connect with HDMI display
⑦	TP IN	Connect to the TP OUT socket on the TP70AT via CAT5e/ CAT6A cable, support bi-directional PoC.
⑧	DC 12V	Insert a DC 12V power adapter here, equipped with faulty power protection, protect the unit from burnt when inserted power adapter with wrong specification (not necessary when TX is connected with power adapter)



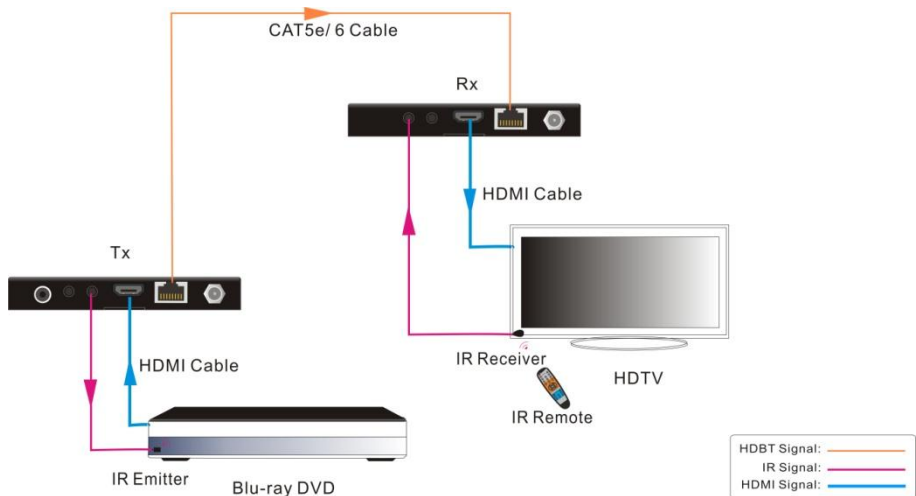
Pictures shown in this manual are only for reference.

## 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.
- 4) Use shielded straight-thru Cat5e/Cat6A cable with TIA/EIA T568B terminations for good transmission effect.

### 3.2 System Diagram



**Figure 3- 1 System Connection**

### 3.3 Connection Procedures

- Step1.** Connect HDMI source (such as Blue-ray DVD) to **HDMI IN** port of the transmitter with an HDMI cable.
- Step2.** Connect **TP OUT** port of the transmitter to **TP IN** port of the receiver through a CAT5e/CAT6A cable.
- Step3.** Connect a HDMI display (such as HDTV) to **HDMI OUT** port of the receiver with HDMI cable.
- Step4.** When using the bi-directional IR control, do the following.
  - a) Connect an IR receiver to the **IR IN** port at either the transmitter or the receiver.



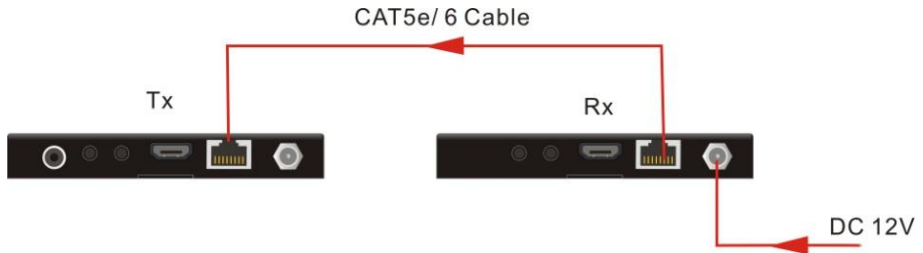
## HDBaseT Extender

b) Connect an IR Emitter to the **IR OUT** port at the other end.

**Step5.** Connect a DC 12V power adaptor to the power port of the transmitter; the receiver will be energized synchronously.

### 3.4 PoC Solution

TP70A boasts HDBT port which support PoC. Connect the DC adapter to either the transmitter or the receiver, the other end is able to be energized synchronously (see in the following figure):

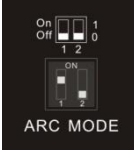
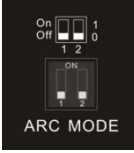


**Figure 3- 2 PoC Connection**

### 3.5 ARC Solution

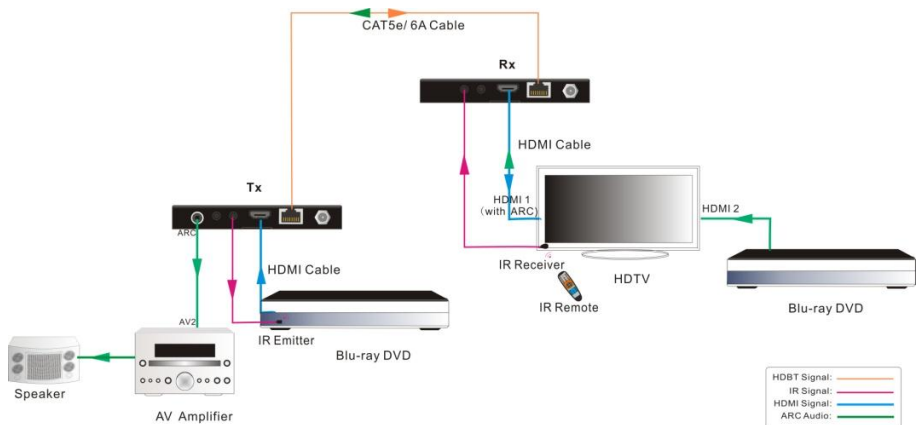
Coax audio ports and HDMI ports boast ARC (Audio Return Channel) function which enables a display via a single audio/ HDMI cable to send (upstream) audio to amplifiers/ speakers, increasing user flexibility.

The transmitter provides an ARC switcher on the bottom panel to enable ARC mode selection. There are 2 modes in total, Connections should vary in different ARC modes to ensure normal ARC output. See the chart below:

ARC Mode	Description	Connection
 <p><b>10</b></p>	Deem TX as ARC device TX is merely a transmission medium for ARC signal	Connect a source device (e.g. Blu-Ray DVD) to the HDMI display.
 <p><b>00</b></p>	Deem AVR device as ARC device.	Connect an ARC device (e.g. Amplifier) to the TX.

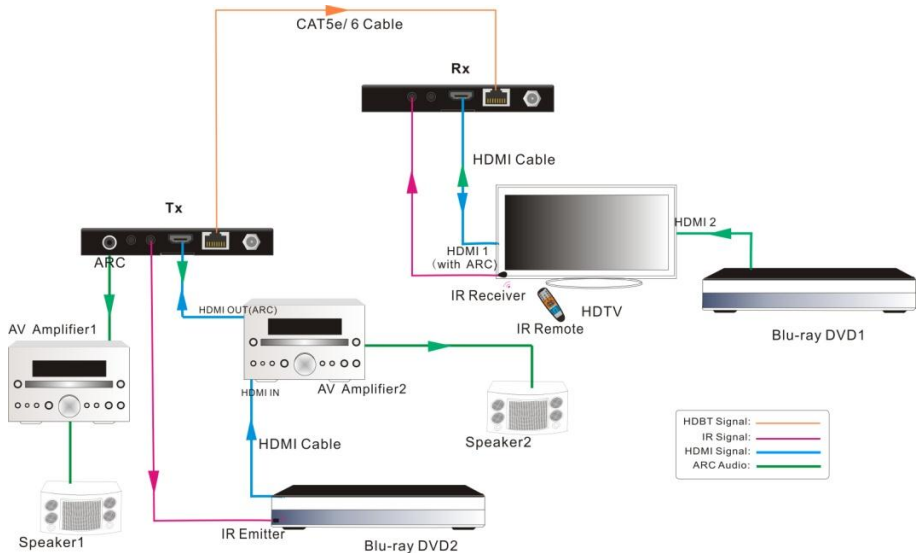
## HDBaseT Extender

When the ARC switcher switched as “10”, connect the devices abiding by the following figure:



**Figure 3- 3 System Connection (ARC “10”)**

When the ARC switcher switched as “00”, connect the devices abiding by the following figure:



**Figure 3- 4 System Connection (ARC “00”)**



## HDBaseT Extender

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- 1) All utilized devices including the HDMI cable should support ARC.
- 2) Make sure the ARC switcher is switched to ON when using ARC function.

### 3.6 Application

TP70A has a good application in various occasions, such as computer realm, monitoring, big screen displaying, meeting room, education and bank & securities institution etc.

## 4. Specification

Model	TP70AT(TX)	TP70AR(RX)
<b>Spec</b>		
<b>Input</b>		
Signal	1 HDMI, 1 IR	1 IR, 1 TP
Connector	1 19-pin Type-A female HDMI 1 3.5mm mini jack	1 3.5mm mini jack 1 RJ-45
<b>Output</b>		
Output	1 ARC, 1 IR, 1 TP	1 HDMI, 1 IR
Connector	1 SPDIF 1 3.5mm mini jack 1 RJ-45	1 19-pin Type-A female HDMI 1 3.5mm mini jack
<b>General</b>		
Resolution Range	800x600@60Hz~4K×2K@30Hz	
Transmission Mode	HDBaseT	
Transmission Distance	1080p 70m (TX and RX connect power separately) 1080p 65m (PoC Solution) 4k ≤ 40m	
Bandwidth	10.2Gbps	
HDMI Standard	HDMI1.4 and HDCP1.4	
Temperature	0~ 50℃	
Reference Humidity	10% ~ 90%	
Power Supply	DC 12V, 1A	
Power Consumption	3.3W	6.4W
Dimension (W*H*D)	115 x 16x 84 mm	115 x 16x 84 mm
Weight	140g	140g

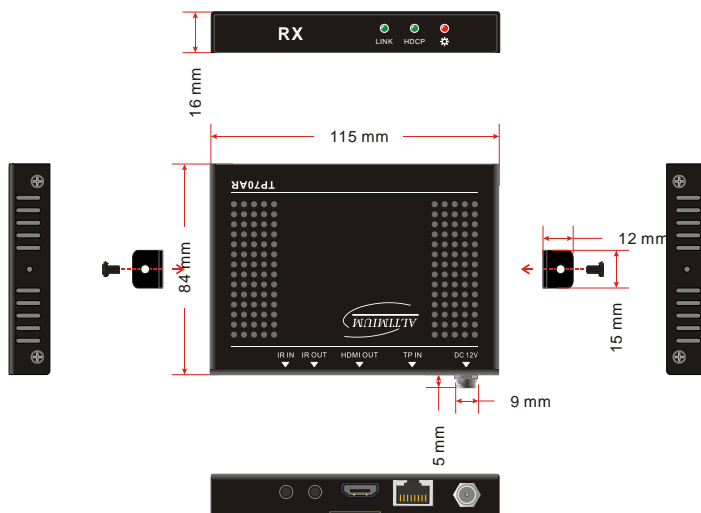
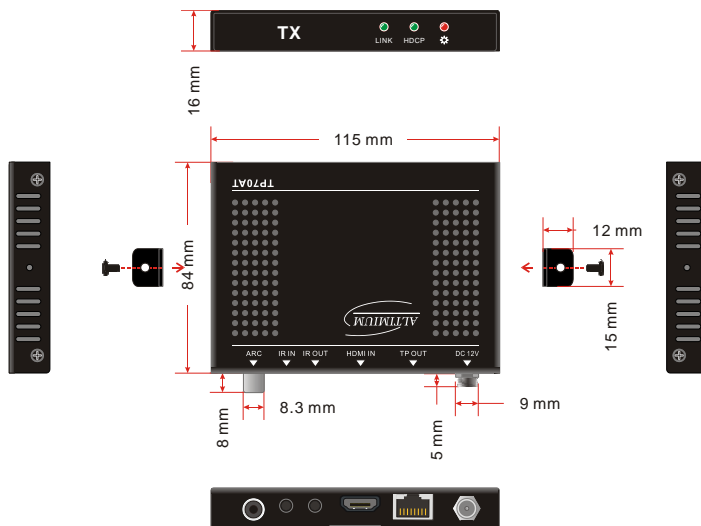
All nominal levels are at ±10%.

## 4.1 Supported Resolution

Aspect Ratio	Resolution	Refresh Rate
4Kx 2K	4096x2160	24/25/30Hz
	3840x2160	24/25/30Hz
16:9	1920x1080	60Hz
	1600x900	60Hz
	1366x768	60Hz
	1280x720	60Hz
	1024x576	60Hz
16:10	1920x1200	60Hz
	1680x1050	60Hz
	1440x900	60Hz
	1360x768	60Hz
	1280x800	60Hz
4:3	1600x1200	60/65/70/75/85Hz
	1400x1050	60Hz
	1280x1024	60/75/85/96Hz
	1024x768	60/70/75/85Hz
	800x600	56/60/72/75/85Hz
	640x480	60/72/75Hz

**Note:** TP70A supports 4k HDMI signal, please adopt quality HDMI cables compliant with HDMI1.4 for reliable transmission.

## 5. Panel Drawing



## 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 local distributor for a solution to these issues.

### ● No output at the ARC port

- In Bypass CEC mode:  
Loose or failed HDMI or ARC connection;  
Ensure HDMI IN port of TX connect with an ARC device;  
There is connection at the ARC port of TX and the device is working normally.
- In Force ARC mode:  
Loose or failed HDMI or ARC connection;  
There is connection at the ARC port of TX and the device is working normally.

### ● 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 support.

## 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.

**1) Product Limited Warranty:** We warrants that its products will be free from defects in materials and workmanship for **two 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.

**2) 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

**3) 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.











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