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 November 2016. In the constant effort to improve our product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

All product function is valid till 2016-11-28.

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.
Contents

1. Introduction ................................................................................................................. 1
   1.1 Brief Introduction ............................................................................................... 1
   1.2 Features ............................................................................................................ 1
   1.3 Package List ...................................................................................................... 1
2. Panel Description ........................................................................................................ 2
   2.1 Transmitter ......................................................................................................... 2
   2.2 Receiver ............................................................................................................ 4
3. System Connection ..................................................................................................... 6
   3.1 Usage Precautions ............................................................................................ 6
   3.2 System Diagram ................................................................................................ 6
   3.3 Connection Procedure ....................................................................................... 6
   3.4 PoH Solution ...................................................................................................... 7
   3.5 ARC Solution ..................................................................................................... 8
   3.6 Application ......................................................................................................... 9
4. Specification ............................................................................................................. 10
   4.1 Supported Resolution ...................................................................................... 11
5. Panel Drawing .......................................................................................................... 12
6. Troubleshooting & Maintenance ............................................................................... 13
7. After-sales Service .................................................................................................... 15
1. Introduction

1.1 Brief Introduction

This product is an HDBT2.0 Extender set which contains a transmitter and a receiver. Compliant with HDMI1.4.0 & HDCP2.2, it is capable to transmit high-definition signal up to 4Kx2K@60Hz. The HDBT ports support HDBT2.0, which enable 100m (max) 4K transmission and 150m 1080p transmission as well as bi-directional IR/ RS232 signal travel via single Cat5e/Cat6 cable. Transmission mode is selectable via front panel switcher.

The set boasts 4 Ethernet ports to work as Ethernet Switch, with any one connecting to LAN, other ports access Ethernet. The unit is controllable via front panel switcher, bi-directional IR & RS232. Furthermore, it also supports ARC function, making it more flexible.

1.2 Features

- Support HDMI 1.4 & HDCP2.2 and is backwards compatible with all previous HDMI standards
- The highest resolution is up to 4Kx2K@60Hz, and support 1080p 3D
- Support HDBT2.0, transmit 4Kx2K signal up to 100m and 1080p signal up to 150m via single CAT5e/CAT6 cable
- Intuitive front panel switcher control: Transmission Mode (100m/150m), ARC (ON/OFF)
- Support CEC and ARC
- Bi-directional IR & RS232 control
- Support bi-directional PoH
- Work as Ethernet Switch
- Status LEDs for power, link & HDCP on front panel

1.3 Package List

- 1 x Transmitter
- 1 x Receiver
- 1 x Power Adapter (DC12V 2A)
- 4 x Mounting Ears
- 8 x Screws
- 8 x Rubber Feet
- 1 x User manual

⚠ Confirm if the product and the accessories are all included, if not, please contact with the dealers
2. Panel Description

2.1 Transmitter

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>FW</td>
<td>Micro USB port, used for firmware update. Firmware updated need auxiliary equipment, please contact with our after-sales department for more details.</td>
</tr>
</tbody>
</table>
| ②  | Power                       | Power indicator:  
  ✓ OFF: No power  
  ✓ RED: DC power present |
| ③  | HDCP                        | HDCP compliance indicator:  
  ✓ OFF: No HDMI traffic(no picture)  
  ✓ GREEN: Traffic with HDCP  
  ✓ Blinking GREEN: Traffic without HDCP |
| ④  | LINK                        | HDBT Link status indicator:  
  ✓ OFF: No Link  
  ✓ GREEN: Link successful  
  ✓ Blinking GREEN: Link problem |
| ⑤  | ON                          | Working status indicator:  
  ✓ OFF: Not operational  
  ✓ Blinking GREEN: Normal operation |
| ⑥  | Transmission Mode Switcher  | Activate 100m/ 150m transmission mode.  
  ✓ 100m mode: 4Kx2K@60Hz and 1080P signals can be transmitted up to 100m  
  ✓ 150m mode: 1080P signal can be transmitted up to 150m, |
### Ultra-thin HDBaseT2.0 Extender Set

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>but do not support 4K signal. Note: After setting switch position, the mode will not take effect until units are restarted. Please set both ends identical.</td>
</tr>
</tbody>
</table>
| 7 | **ARC Switcher**  
  ✓ ON: Enable ARC function  
  ✓ OFF: Disable ARC function |
| 8 | **ETHERNET**  
  Ethenet port, work as Ethernet Switch together with three Ethenet ports on rear panel of Receiver. Connect any one with a router, the other 3 ports are able to access LAN. |
| 9 | **HDBT OUT/PoH**  
  Connect to the HDBT IN/PoH port on rear panel of the Receiver via CAT5e/ CAT6a cable, compliant with HDBT2.0 and support bi-directional PoH. |
| 10 | **HDMI IN**  
  Connect with HDMI source |
| 11 | **AUDIO OUT**  
  Analog audio output port, connect with an AV amplifier to play analog audio which its format is PCM. |
| 12 | **SPDIF OUT**  
  Digital audio output port, connect with an AV amplifier to play digital audio. |
| 13 | **IR IN**  
  Connect with 5V IR receiver to collect infrared signal, work with far-end IR OUT port |
| 14 | **IR OUT**  
  Connect with IR Emitter to send infrared signal, work with far-end IR IN port |
| 15 | **RS232**  
  Serial port, connects with control device or device to be controlled, supports bi-directional RS232 control |
| 16 | **DC 12V**  
  Connect with a DC12V 2A power adapter. |

*Pictures for reference only, subject to our existing products.*
# Ultra-thin HDBaseT2.0 Extender Set

## 2.2 Receiver

![Figure 2-2 Panel Description of Receiver](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>FW</td>
<td>Micro USB port, used for firmware update. Firmware updated need auxiliary equipment, please contact with our after-sales department for more details.</td>
</tr>
</tbody>
</table>
| ②  | Power              | Power indicator:  
✓ OFF: No power  
✓ RED: DC power present |
| ③  | HDCP               | HDCP compliance indicator:  
✓ OFF: No HDMI traffic(no picture)  
✓ GREEN: Traffic with HDCP  
✓ Blinking GREEN: Traffic without HDCP |
| ④  | LINK               | HDBT Link status indicator:  
✓ OFF: No Link  
✓ GREEN: Link successful  
✓ Blinking GREEN: Link problem |
| ⑤  | ON                 | Working status indicator:  
✓ OFF: Not operational  
✓ Blinking GREEN: Normal operation |
| ⑥  | Transmission Mode Switcher | Activate 100m/150m transmission mode.  
✓ 100m mode: 4Kx2K@60Hz and 1080P signals can be transmitted up to 100m  
✓ 150m mode: 1080P signal can be transmitted up to 150m, but do not support 4K signal. |
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
</table>
| ⑦  | ARC Switcher         | ✓ ON: Enable ARC function  
✓ OFF: Disable ARC function                                                                                                               |
| ⑧  | ETHERNET             | Three Ethernet ports, work as Ethernet Switch together with the **ETHERNET** port on rear panel of Transmitter. Connect any one with a router, the other 3 ports are able to access LAN. |
| ⑨  | HDBT IN/ PoH         | Connect to the **HDBT OUT/PoH** port on the Transmitter via CAT5e/ CAT6a cable, compliant with HDBT2.0 and support bi-directional PoH       |
| ⑩  | HDMI OUT             | Connect with HDMI display                                                                                                                |
| ⑪  | SPDIF IN             | Digital audio input ports, work with **SPDIF OUT** on Transmitter. Note: This port only can be used under **ARC OFF** mode.               |
| ⑫  | IR IN                | Connect with 5V IR receiver to collect infrared signal, work with far-end **IR OUT** port                                                |
| ⑬  | IR OUT               | Connect with IR Emitter to send infrared signal, work with far-end **IR IN** port                                                        |
| ⑭  | RS232                | Serial port, connects with control device or device to be controlled, supports bi-directional RS232 control                               |
| ⑮  | DC 12V               | Connect with a DC12V 2A power adapter.                                                                                                   |

Note: After setting switch position, the mode will not take effect until units are restarted. Please set both ends identical.

Books: Pictures for reference only, subject to our existing products.
3. System Connection

3.1 Usage Precautions

1) System should be installed in a clean environment and has a proper 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

3.3 Connection Procedure

Step1. Connect HDMI source (such as Blue-ray DVD) to HDMI IN port of the transmitter with an HDMI cable.

Step2. Connect HDBT OUT/PoH port of the transmitter to HDBT IN/PoH port of the receiver through a straight-thru CAT5e/CAT6a cable.

Step3. Connect a HDMI display器 (such as HDTV) to HDMI OUT and SPDIF IN port of the receiver with HDMI cable and digital audio cable.

Step4. Connect an AV amplifier to AUDIO OUT or SPDIF OUT of Transmitter.

Step5. Connect speakers to AV amplifier.
Ultra-thin HDBaseT2.0 Extender Set

**Step 6.** When using the bi-directional IR control, do the following:

a) Connect the IR emitter at either end to the **IR OUT** port on either the transmitter or the receiver.

b) When using a powered IR receiver, connect via a 3.5 mm stereo plug to the **IR IN** on either the receiver or the transmitter.

**Step 7.** When using the bi-directional RS232 control, do the following:

a) Connect PC to the **RS232** port at either the transmitter or the receiver.

b) Connect a third-party device (such as projector) need to be controlled to the **RS232** port at the other end.

c) Send RS232 commands to control the third-party device. For more details about RS232 commands, please refer to the user manual for the third-party device.

**Step 8.** Connect an Ethernet Router to any one of the 4 Ethernet ports to access Ethernet.

In this case, PCs connected to the other 3 Ethernet ports should set to static IP.

**Step 9.** Connect with power adaptor to **DC 12V** port of either Transmitter or Receiver, the other end will be energized synchronously with PoH solution.

---

1) System Diagram shown in this manual are for reference only, more specific schemes depend on real devices.

2) Connect HDBT ports via straight-thru CAT5e/6 cable with TIA/EIA568B standard terminations at both ends.

3) RS232 communication protocol: Baud Rate: 9600; data bit: 8; stop bit: 1; parity: none. This product receives RS232 control from devices with various baud rate (2400, 4800, 9600, 19200, 38400, 57600, 115200).

4) HDBT ports can work with our company’s HDBT devices that has same power supply solution.

5) Make sure the switchers on front panel are in the necessary status.

6) Reboot the device if the switcher status has changed.

### 3.4 PoH Solution

This product boasts HDBT port which support PoH. Besides carrying uncompressed 1080p or 4K video signals, high-resolution lossless audio, Ethernet, and two-way IR or RS-232 control signals over a single Cat 5e/Cat 6 cable, it transfers DC power over a single network cable to a distance up to 150 meters (m) bi-directionally.

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 PoH Solution Diagram](image)

### 3.5 ARC Solution

This product boasts 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. Connect the devices abiding by the following figure:

![Figure 3-3 ARC Solution Diagram](image)

- **1)** When using ARC feature, please connect the amplifier via HDMI cable.
- **2)** All utilized devices including the HDMI cable should support ARC.
- **3)** Make sure the ARC switcher is switched to ON when using ARC function.
3.6 Application

Compliant with HDBT2.0, this product has a good application in occasions where high-definition AV distribution, long-distance transmission, Ethernet Switch are needed, such as computer realm, monitoring, big screen displaying, meeting room, education and bank & securities institution etc.
## 4. Specification

<table>
<thead>
<tr>
<th>Spec</th>
<th>Transmitter</th>
<th>Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audio &amp; Video</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>1 x HDMI (19 pin Type-A male)</td>
<td>1 x HDBT (RJ45 female)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 x Digital audio (SPDIF)</td>
</tr>
<tr>
<td>Output</td>
<td>1 x HDBT (RJ45 female)</td>
<td>1 x HDMI (19 pin Type-A male)</td>
</tr>
<tr>
<td></td>
<td>1 x Analog audio (RCA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 x Digital audio (SPDIF)</td>
<td></td>
</tr>
<tr>
<td>Signal Standard</td>
<td>HDMI1.4 &amp; HDCP2.2</td>
<td>HDMI1.4 &amp; HDCP2.2</td>
</tr>
<tr>
<td>Transmission Mode</td>
<td>HDBaseT</td>
<td></td>
</tr>
<tr>
<td>Audio Format</td>
<td>HDMI Embedded audio: PCM/Dolby Digital/DTS/DTS-HD</td>
<td>Analog Audio: PCM</td>
</tr>
<tr>
<td></td>
<td>Digital Audio: PCM/Dobly Digital/DTS/DTS-HD</td>
<td></td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>1 x IR IN (3.5mm mini jack)</td>
<td>1 x IR IN (3.5mm mini jack)</td>
</tr>
<tr>
<td>Output</td>
<td>1 x IR OUT (3.5mm mini jack)</td>
<td>1 x IR OUT (3.5mm mini jack)</td>
</tr>
<tr>
<td>Other</td>
<td>1 x Ethernet (RJ45 female)</td>
<td>3 x Ethernet (RJ45 female)</td>
</tr>
<tr>
<td></td>
<td>1 x RS232 (3-pin pluggable terminal block)</td>
<td>1 x RS232 (3-pin pluggable terminal block)</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission Distance</td>
<td>1080p ≤ 150m; 4Kx2K ≤ 100m</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>0 ~ 50°C</td>
<td></td>
</tr>
<tr>
<td>Reference Humidity</td>
<td>10% ~ 90%</td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>Input: 100V ~ 240V AC</td>
<td>Output: DC 12V 2A</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>6w</td>
<td>8w</td>
</tr>
<tr>
<td>Dimension</td>
<td>(W<em>H</em>D) 196<em>19</em>100</td>
<td>196<em>19</em>100</td>
</tr>
<tr>
<td>(mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>294</td>
<td>335</td>
</tr>
</tbody>
</table>

📖 All nominal levels are at ±10%.

### 4.1 Supported Resolution

<table>
<thead>
<tr>
<th>4Kx2K</th>
<th>4096x2160@30Hz, 3840x2160 (30Hz/24Hz/25Hz/50Hz/60Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:9</td>
<td>1080P 3D, 1920x1080@60Hz, 1600x900@60Hz, 1366x768@60Hz, 1280x720@60Hz, 1024x576@60Hz</td>
</tr>
<tr>
<td>16:10</td>
<td>1920x1200@60Hz, 1680x1050@60Hz, 1440x900@60Hz, 1360x768@60Hz, 1280x800@60Hz</td>
</tr>
<tr>
<td>4:3</td>
<td>1600x1200@60Hz, 1400x1050@60Hz, 1280x1204@60Hz, 1024x768@60Hz, 800x600@60Hz, 640x480@60Hz</td>
</tr>
</tbody>
</table>

📖 This product supports 4k&1080p 3D HDMI signal, please adopt high-quality HDMI cables compliant with HDMI1.4 for optimum range and performance.
5. Panel Drawing

Figure 5-1 Transmitter

Figure 5-2 Receiver
### 6. Troubleshooting & Maintenance

<table>
<thead>
<tr>
<th>Problems</th>
<th>Causes</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>No reaction to any operation, power indicator is off</td>
<td>Haven’t been powered on.</td>
<td>Insert power adapter to either end.</td>
</tr>
<tr>
<td></td>
<td>The poor quality of network cable.</td>
<td>Should the replacement CAT5e/CAT6a cable of high quality.</td>
</tr>
<tr>
<td>Abnormal indication of the status LEDs</td>
<td>Wrong specification of the power adapter.</td>
<td>Change for DC 12V 2A power adapter.</td>
</tr>
<tr>
<td>Color lose or poor picture quality</td>
<td>Signal loss caused by long transmission distance beyond effective value.</td>
<td>Switch the transmission mode switcher to 150m, make sure the connecting cable is within 150m and of good quality.</td>
</tr>
<tr>
<td></td>
<td>Bad quality of the HDMI cable.</td>
<td>Ensure the HDMI cables used at source, transmitter, receiver and display are properly connected and are of good quality.</td>
</tr>
<tr>
<td></td>
<td>HDMI cables are too long to transmit 4K HDMI signal successfully.</td>
<td>Shorten the length of HDMI cables.</td>
</tr>
<tr>
<td></td>
<td>The longest HDMI cable is 8m for 4K input signal, and 20m for 4K output signal.</td>
<td></td>
</tr>
<tr>
<td>No video output</td>
<td>Communication cables has no connection or bad connection.</td>
<td>Recheck all cables and ports.</td>
</tr>
<tr>
<td></td>
<td>The display that you use is incompatible with this device.</td>
<td>It is recommended that you use mainstream display.</td>
</tr>
<tr>
<td>No digital audio output</td>
<td>Input source and output device are connected to the wrong ports.</td>
<td>Check again and make sure input source and output device are connected correctly.</td>
</tr>
<tr>
<td></td>
<td>Audio Output device don’t support the audio format.</td>
<td>Change for other output devices that support the audio formats listed in</td>
</tr>
</tbody>
</table>
Specifications

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No analog audio output</td>
<td>Audio OUT port (RCA connector) only support PCM format. Change for other audio input device that support PCM format.</td>
</tr>
<tr>
<td>Cannot use ARC function</td>
<td>ARC switcher is dialed to OFF Dial the switcher to ON. Change for devices/ cables that support ARC</td>
</tr>
<tr>
<td>Cannot work as an Ethernet Switch. PCs cannot connect to the internet.</td>
<td>The DHCP switch of Router is turned on, but the IP address of PCs are static. Recheck all PCs and set these Pcs to use dynamic IP mode.</td>
</tr>
<tr>
<td></td>
<td>The DHCP switch of Router is turned off, but the IP address of PCs are dynamic. Recheck all PCs and set these Pcs to use static IP mode and make sure the difference of IP addresses to avoid IP address conflict.</td>
</tr>
<tr>
<td></td>
<td>Network or server failure. Please contact to your Internet Service Provider.</td>
</tr>
<tr>
<td>Cannot use the device</td>
<td>the device is broken Send it to authorized dealer for repairing.</td>
</tr>
</tbody>
</table>

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.

1) 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.

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.
     - 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.
ALTIMIUM
587 Avenue Blaise Pascal
77550 MOISSY-CRAMAYEL
Tél : 01.64.13.31.00
Fax: 01.60.29.62.70
Mail: contact@tesca-audio.com
Web: www.altimium.com