



## User Manual

18G HDBaseT Receiver with Audio Breakout

**Model PT-HDBT-230-RX**

Designed in Germany

## **Preface**

Read this user manual carefully before using this product. Pictures shown in this manual are for reference only. Different model layouts and specifications are subject to the physical product.

This manual is for operation instructions only, not for any maintenance usage.

In the constant effort to improve our product, we reserve the right to make changes in functions or parameters without prior notice or obligation.

## **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.



**REACH | 1907/2006/EU**

**ROHS | 2011/65/EU**

PureLink hereby declares that this product **PureTools PT-HDBT-210** complies with Directives 1907/2006/EU und 2011/65/EU.

**EMC / LVD (Electro Magnetic Compatibility / Low Voltage Directive)**

PureLink GmbH hereby declares that this product **PureTools PT-HDBT-210** complies with Directives 2014/30/EU and 2014/35/EU. The full text of the EU Declaration of Conformity is available at the following Internet address:

[http://www.purelink.de/ce/4251364735022\\_CE.pdf](http://www.purelink.de/ce/4251364735022_CE.pdf)



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## SAFETY PRECAUTIONS

To ensure 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 protrusion.
  - Do not remove the housing of the device as opening or removing the housing may expose you to dangerous voltage or other hazards.
  - Install the device in a place with sufficient 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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## Product Introduction

Thank you for choosing the PT-HDBT-230-RX 18G receiver which is designed to receive 4K video at distances of up to 70 meters and 1080P video at distances up to 100 meters over a single CATx cable. It supports de-embedded audio, ARC, bidirectional IR and RS232 pass-through. PoC allows the receiver to be powered from other devices with only one power adapter is needed in system.

## Features

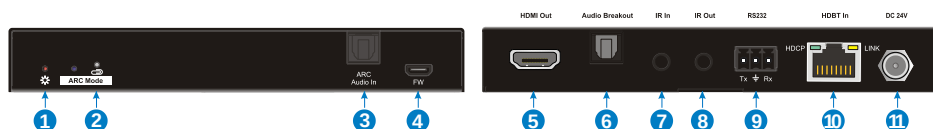
- Supports HDMI 2.0 and the HDMI video resolution up to 4K@60Hz 4:4:4 HDR.
- Extends 4K signals to distances up to 70 meters and 1080P signals to distances up to 100 meters over a single CATx cable.
- Supports video resolution up-scaling, the 1080P input can be automatically upgraded to 4K output.
- SPDIF out on receiver for source audio de-embedding.
- 18Gbps high bandwidth.
- Bidirectional IR, RS232 and 24V PoC.
- Supports ARC.
- Supports CEC pass-through.
- Provides LEDs to indicate the current operating status.
- Firmware upgrade by Micro-USB port.

## Packing List

- 1x PT-HDBT-230-RX Receiver
- 2x Mounting Ears with 4 Screws
- 4x Plastic Cushions
- 1x 3-pin Terminal Block
- 1x User Manual

**Note:** Please contact your distributor immediately if any damage or defect in the components is found.

## Panel Description



| No. | Name            | Description                                                                                                                                                                                                                                                        |
|-----|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | POWER LED       | The LED illuminates red when power is applied.                                                                                                                                                                                                                     |
| ②   | ARC Mode        | Press the button with a paper clip or other sharp tool to enable the ARC mode, then the left LED will illuminate blue. Press it again to exit the ARC mode , and the LED will go off.                                                                              |
| ③   | ARC Audio in    | Toslink connector to connect ARC audio sourcedevice                                                                                                                                                                                                                |
| ④   | FW              | Micro-USB port for firmware upgrade.                                                                                                                                                                                                                               |
| ⑤   | HDMI Out        | Type-A female HDMI output port to connect HDMI display .                                                                                                                                                                                                           |
| ⑥   | Audio Breakout: | If the ARC mode is OFF, the Toslink connector is connected to speaker or amplifier for HDMI source audio de-embedding. Note that if the ARC mode is ON, this port has no audio output.                                                                             |
| ⑦   | IR IN           | 3.5mm jack to connect the IR receiver for IR pass-through.                                                                                                                                                                                                         |
| ⑧   | IR Out          | 3.5mm jack to connect the IR emitter for IR pass-through.                                                                                                                                                                                                          |
| ⑨   | RS232           | 3-pin terminal block to connect the RS232 control device (e.g. PC) or a third-party device to be controlled.                                                                                                                                                       |
| ⑩   | HDBT In         | RJ45 port to connect the HDBT output port of transmitter by CATx Ethernet cable. The LINK LED illuminates orange when there is a valid HDBaseT link between the transmitter and the receiver. The HDCP LED illuminates green when the video contains HDCP content. |
| ⑪   | DC 24V          | DC connector for the power adapter connection.                                                                                                                                                                                                                     |

## ARC Mode

The front panel of the receiver provides a buttons to enable or disable ARC mode, as below figure shows:



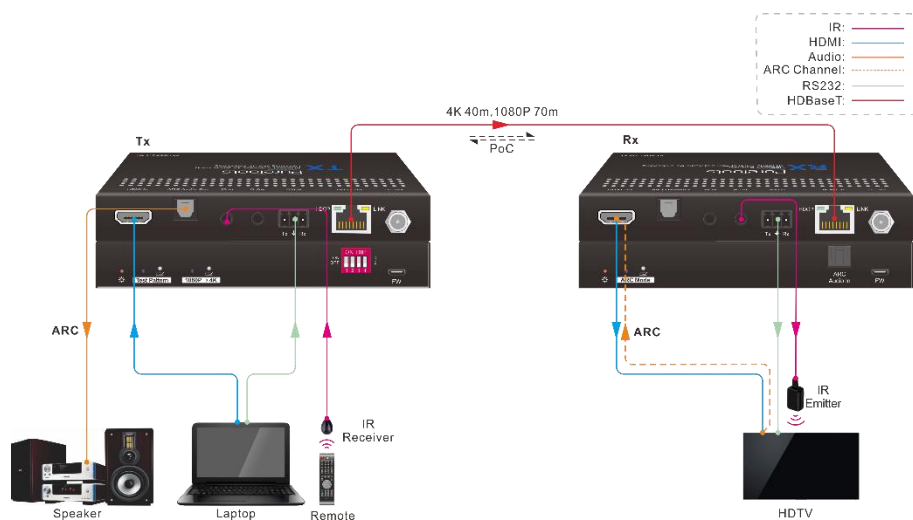
Press the button with paper clip or other sharp tool to enable the ARC mode, and then the left LED illuminates blue. Press it again to exit the ARC mode and the LED will turn off.

| ARC Mode | Display (e.g.TV)     | Audio Transmission Path                                                                                                                                                                                                                                                                                                                                      |
|----------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ON       | ARC is supported     | The TV audio is transmitted from the TV back to the receiver via HDMI cable, and then it will be output by the <b>ARC Audio Out</b> port of transmitter.                                                                                                                                                                                                     |
|          | ARC is not supported | Connect the TV to the <b>ARC Audio In</b> port of receiver with an audio cable. The TV audio is transmitted from the TV back to the receiver via the audio cable, and then it will be output by the <b>ARC Audio Out</b> port of transmitter.<br><br><i>Note that if the ARC mode is ON, the <b>Audio Breakout</b> port of receiver has no audio output.</i> |
| OFF      | /                    | The TV audio can't go back to the <b>ARC Audio Out</b> port of transmitter. The <b>Audio Breakout</b> port of receiver is connected to a speaker or amplifier for HDMI source audio de-embedding.                                                                                                                                                            |

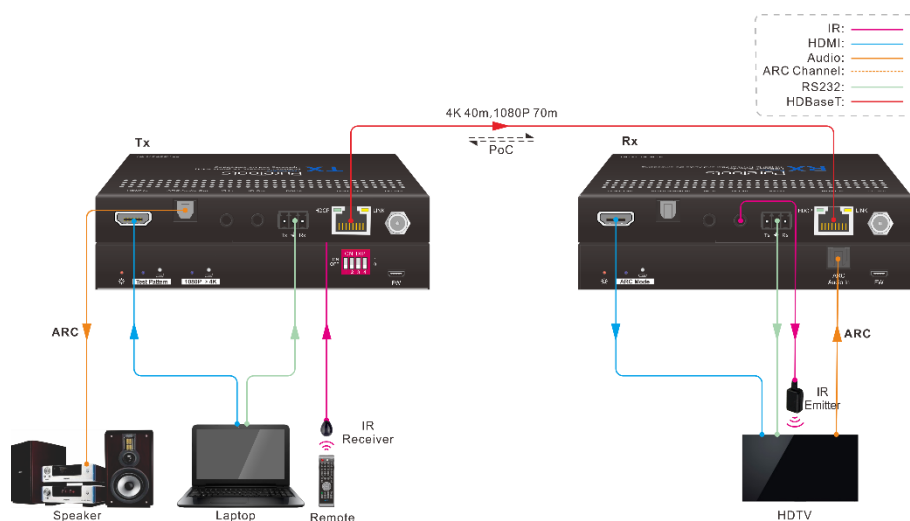
## System Connection

The following diagram illustrates the typical input and output connections of the extender:

- 1) The ARC mode of the receiver is **ON**, and the display device (e.g. HDTV) supports ARC. The TV audio is transmitted from the TV back to the receiver via an HDMI cable, and then it will output at the **ARC Audio Out** port of the transmitter.

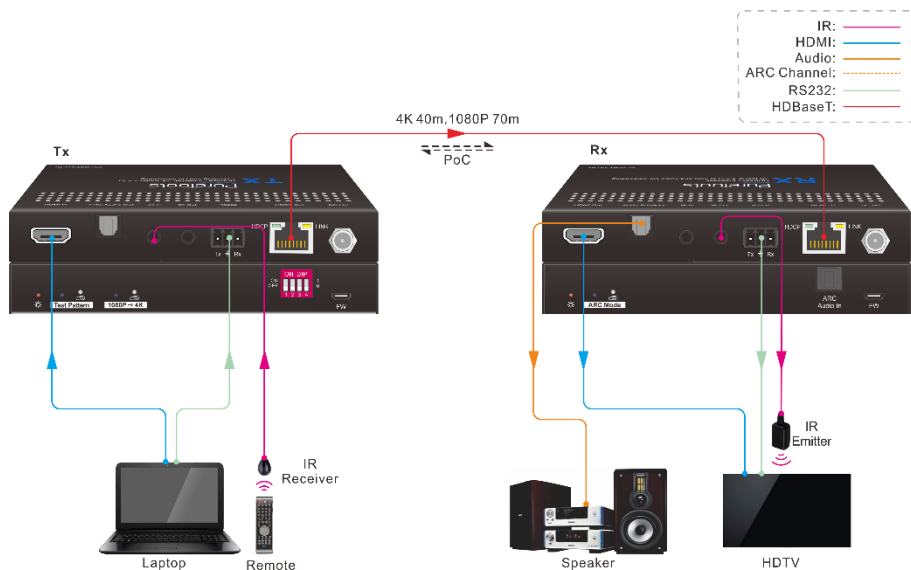


- 2) The ARC mode of receiver is **ON**, but the display device (e.g. HDTV) doesn't support ARC. The TV audio is transmitted from the TV back to the receiver via the audio cable, and then it will output at the **ARC Audio Out** port of the transmitter.



**Note:** The S/FTP cable is recommended to be used to ensure optimal machine performance in ARC mode.

- 3) The ARC mode of receiver is **OFF**. The TV audio can't go back to the **ARC Audio Out** port of the transmitter. The **Audio Breakout** port of receiver is connected to speaker or amplifier for HDMI source audio de-embedding.



## Technical Specification

| Video                        |                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------|
| Input                        | (1) HDBT                                                                                                |
| Input Connector              | (1) RJ45                                                                                                |
| Input Resolution             | Up to 4Kx2K@60Hz 4:2:0                                                                                  |
| Output                       | (1) HDMI                                                                                                |
| Output Connector             | (1) Type-A female HDMI                                                                                  |
| Output Resolution            | Up to 4Kx2K@60Hz 4:4:4 8bit HDR10                                                                       |
| Audio                        |                                                                                                         |
| Input                        | (1) ARC Audio In                                                                                        |
| Input Connector              | (1) Toslink Connector                                                                                   |
| Output                       | (1) Audio Breakout                                                                                      |
| Output Connector             | (1) Toslink connector                                                                                   |
| Audio Format                 | Supports PCM, Dolby Digital, Dolby True-HD, DTS and DTS-HD.                                             |
| Frequency Response           | 20Hz – 20KHz, $\pm 3\text{dB}$                                                                          |
| Max Output Level             | 2.0Vrms $\pm 0.5\text{dB}$ . 2V = 16dB headroom above -10dBV (316mV) nominal consumer line level signal |
| THD+N                        | < 0.05% (-80dB), 20Hz – 20KHz bandwidth, 1KHz sine at 0dBFS level (or max level)                        |
| SNR                          | > 85dB, 20Hz-20 kHz bandwidth                                                                           |
| Crosstalk Isolation          | > 70dB, 10KHz sine at 0dBFS level (or max level before clipping)                                        |
| L-R Level Deviation          | < 0.3dB, 1KHz sine at 0dBFS level (or max level before clipping)                                        |
| Frequency Response Deviation | < $\pm 0.5\text{dB}$ 20Hz - 20KHz                                                                       |
| Output Load Capability       | 1K $\Omega$ and higher (Supports 10x paralleled 10K $\Omega$ loads)                                     |
| Stereo Channel Separation    | >70dB@1KHz                                                                                              |
| Control                      |                                                                                                         |

|                       |                                                                       |
|-----------------------|-----------------------------------------------------------------------|
| Control Part          | (1) ARC Mode button, (1) FW, (1) IR In, (1) IR Out, (1) RS232         |
| Control Connector     | (1) Micro-USB port, (2) 3.5mm jacks, (1) 3-pin terminal block         |
| <b>General</b>        |                                                                       |
| Bandwidth             | 18Gbps                                                                |
| HDMI Standard         | 2.0                                                                   |
| HDCP Version          | 2.2, 1.4 compliant                                                    |
| CEC                   | Pass-through                                                          |
| Bidirectional PoC     | Supported                                                             |
| HDMI 2.0 Cable Length | 4K@60Hz 4:4:4 ≤ 5m, 4K@60Hz 4:2:0 ≤ 15m, 1080P ≤ 20m                  |
| Transmission Standard | HDBaseT                                                               |
| Transmission Distance | 1080P@60Hz ≤ 328 feet (100 meters),<br>4K@60Hz ≤ 230 feet (70 meters) |
| Operation Temperature | -5~ +55℃                                                              |
| Storage Temperature   | -25 ~ +70℃                                                            |
| Relative Humidity     | 10%-90%                                                               |
| Power Supply          | Input:100V~240V AC; Output:24V DC 1.25A                               |
| Power Consumption     | 12W (Max)                                                             |
| Dimension (W*H*D)     | 140mm x 19.5mm x 84mm                                                 |
| Net Weight            | 290g                                                                  |

**Note:** Please use high-quality HDMI cables, fully compliant with HDMI 2.0 for a reliable transmission and connection.

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## After-Sales Service

If problems appear when using the product, please deal with the problems referring to this user manual. During the warranty period, any transport costs are borne by the customer.

- 1) **Product Limited Warranty:** The product will be free from defects in materials and workmanship for **three years** (The purchase invoice shall prevail). Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
- 2) **What the warranty does not cover (servicing available for a fee):**
  - 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 shown 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 by distributor.
    - 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:** For any questions or problems, contact your distributor or reseller and tell them the respective product name and version, the detailed failure situation as well as the formation of the cases.



## Asking for Assistance

**Technical Support:**

Phone: +49 5971 800299 - 0

Fax: +49 5971 800299 - 99

**Technical Support Hours:**

8:30 AM to 5:00 PM Monday thru Thursday

8:30 AM to 4:00 PM Friday

**Write to:**

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D - 48432 Rheine

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