**PureTools**



**User Manual**

**HDMI Fiber Extender 4K (60Hz 4:4:4)
with Audio Insertion and Extraction**

**Model PT - HDOF-100**

Designed in Germany

Version V1.0

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# 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

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# 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.

FC

**REACH | 1907/2006/EU**

**ROHS | 2011/65/EU**

PureLink hereby declares that this product **PureTools PT-HDOF-100** 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- HDOF-100** 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/4251364736227_CE.pdf

CE

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# SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructionscarefully 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 infire, 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 cleanersto 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 asnormal electrical wastes.

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# Content

# 1. Product Introduction

## 1.1 Introduction

This PT-HDOF-100 HDMI Extender can extend HDMI signal up to 10 km (over single-mode fiber cable) . It supports video resolution up to 4K@60Hz 4:4:4. Transmitter supports loop output, audio embedding and EDID management function. Receiver supports audio extracting function. In addition, the extender supports bidirectional IR control and RS-232 signal pass-through. It can allow you to easily control the display device on the signal source side or control the signal source device on the display side when using this extender.

## 1.2 Features

- HDMI 1.4 and HDCP 2.2 compliant
- HDMI 2.0b, HDCP 2.2 and DVI 1.0 compliant
- Support 18Gbps video bandwidth
- Video resolution up to 4k@50/60Hz 4:4:4
- HDMI audio formats: LPCM2/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
- Support 3D and HDR format video, does not support CEC control
- Transmission distance up to 10 km (over single-mode fiber cable)
- Support bidirectional IR control, RS-232 pass-through and EDID management for simple and convenient control
- Transmitter supports loop output (sharing local HD video and audio) and audio embedding function
- Receiver supports audio extracting output function
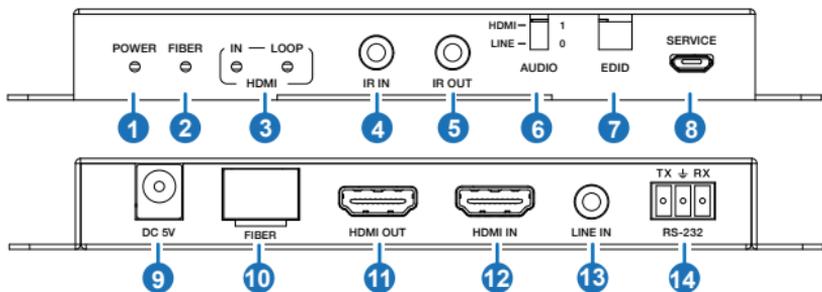- Compact design for easy and flexible installation

## 1.3 Package List

- 1 × HDMI Fiber Extender (Transmitter)
- 2 × Power adaptor (5V DC, 1A)
- 1× User Manual
- 2 × Mounting ears
- 2 × 3-pin Phoenix connectors

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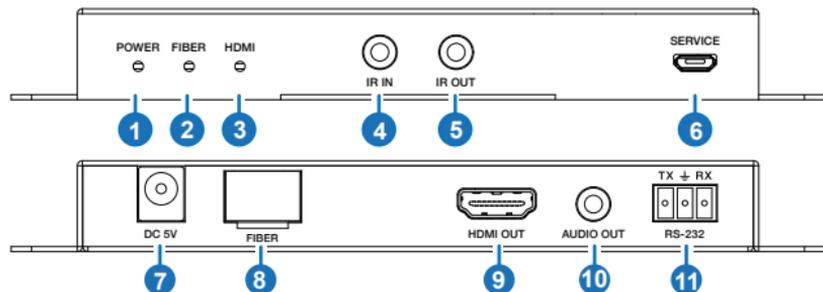
# 2. Panel Description

## 2.1 Transmitter Layout



| No. | Name | Function Description |
|---|---|---|
| 1 | Power LED | The power indicator is always on when the Transmitter is powered on. |
| 2 | FIBER LED | The optical fiber connection indicator is always on when the Transmitter and Receiver establish a normal optical fiber signal connection. |
| 3 | HDMI LED | IN: The HDMI signal input indicator is always on when there is signal input on the HDMI IN port. |
| | | LOOP: The HDMI loop output indicator is always on when the HDMI OUT port of the Transmitter outputs signals to the HDMI display device. |
| 4 | IR IN | Connect to IR Receiver cable. The IR signal will send to the IR OUT port of the Receiver. |
| 5 | IR OUT | Connect to IR Blaster cable. The IR signal is from the IR IN port of the Receiver. |
| 6 | AUDIO switch | Switch to select audio signal source (HDMI IN or LINE IN). When there is no video signals input, audio signals can be transmitted separately. |

| No. | Name | Description |
|-----|------|-------------|
| 7 | EDID DIP switch | Dial the switch to set EDID.<br>11: Copy RX HDMI OUT<br>10: Copy TX HDMI LOOP OUT<br>01: 4K60_2CH<br>00: 1080P_2CH |
| 8 | SERVICE port | Firmware update port. |
| 9 | DC 5V | DC 5V/1A power supply port |
| 10 | FIBER | Connect the Transmitter optical fiber module, and transmit signals to the Receiver via an optical fiber cable. |
| 11 | HDMI OUT | HDMI video loop output port, connect to HDMI display device such as TV or Projector with an HDMI cable. |
| 12 | HDMI IN | HDMI signal input port, connect to HDMI source device such as DVD or PC with an HDMI cable. |
| 13 | LINE IN | Audio signal input port, connect to audio source device such as MP3. |
| 14 | RS-232 | RS-232 signal pass-through port for transmitting RS-232 command signals between the Transmitter and Receiver. |

## 2.1 Receiver Layout

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| No. | Name | Function Description |
|-----|------|---------------------|
| 1 | Power LED | The power indicator is always on when the Receiver is powered on. |
| 2 | FIBER LED | The optical fiber connection indicator is always on when the Transmitter and Receiver establish a normal optical fiber signal connection. |
| 3 | HDMI LED | The HDMI signal output indicator is always on when the HDMI OUT port of the Receiver outputs signals to the HDMI display device. |
| 4 | IR IN | Connect to IR Receiver cable. The IR signal will send to the IR OUT port of the Transmitter. |
| 5 | IR OUT | Connect to IR Blaster cable. The IR signal is from the IR IN port of the Transmitter. |
| 6 | SERVICE port | Firmware update port. |
| 7 | DC 5V | DC 5V/1A power supply port |
| 8 | FIBER | Connect the Receiver optical fiber module, and receive signals from the Transmitter via an optical fiber cable. |
| 9 | HDMI OUT | HDMI signal output port, connect to HDMI display device such as HDTV or Projector with an HDMI cable. |
| 10 | AUDIO OUT | Audio signal extracting output port (extract the HDMI OUT audio signal), connect to audio output device such as amplifier or speaker. |
| 11 | RS-232 | RS-232 signal pass-through port for transmitting RS-232 command signals between the Transmitter and Receiver. |

# 3. Specification

| Technical | |
|---|---|
| HDMI Compliance | HDMI 2.0b |
| HDCP Compliance | HDCP 2.2 |
| Video Bandwidth | 18Gbps |
| Video Resolution | 480i ~1080p50/60Hz, 4K@24/30Hz, 4k@60Hz |
| Color Space | RGB, YCbCr 4:4:4 / 4:2:2, YUV 4:2:0 |
| Color Depth | 8-bit, 10-bit, 12-bit |
| HDMI Audio Formats | LPCM2/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX,DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD |
| Transmission Distance | Up to 10 km over single-mode fiber cable |
| IR Frequency | 20KHz-60KHz |
| RS-232 Baud Rate | 4800-115200bps |
| ESD Protection | Human body model — ±8kV (Air-gap discharge) & ±4kV (Contact discharge) |
| **Connection** | |
| Transmitter | Input:   1 x HDMI IN [Type A 19-pin female]<br>          1 x LINE IN [3.5mm Stereo Mini-jack]<br>          1 x IR IN [3.5mm Stereo Mini-jack]<br>          1 x RS-232 [3.81mm Phoenix connector]<br>          1 x SERVICE [Micro USB, Update port]<br>Output: 1 x HDMI OUT [Type A 19-pin female]<br>          1 x Optical Fiber Out [LC female]<br>          1 x IR OUT [3.5mm Stereo Mini-jack] |
| Receiver | Input:   1 x Optical Fiber In [LC female]<br>          1 x IR IN [3.5mm Stereo Mini-jack]<br>          1 x SERVICE [Micro USB, Update port]<br>Output: 1 x HDMI OUT [Type A 19-pin female]<br>          1 x RS-232 [3.81mm Phoenix connector]<br>          1 x IR OUT [3.5mm Stereo Mini-jack]<br>          1 x AUDIO OUT [3.5mm Stereo Mini-jack] |

| Mechanical | |
|---|---|
| Housing | Metal Enclosure |
| Color | Black |
| Dimensions | Transmitter / Receiver:<br>134mm [W] x 68mm [D] x 18mm [H] |
| Weight | Transmitter: 280g, Receiver: 278g |
| Power Supply | Input: AC 100 - 240V 50/60Hz<br>Output: DC 5V/1A<br>(US/EU standards, CE/FCC/UL certified) |
| Power Consumption | Transmitter: 3.85 W (Max), Receiver: 2.7 W (Max) |
| Operating Temperature | 0 - 40°C |
| Storage Temperature | -20 - 60°C |
| Relative Humidity | 20 - 90% RH (no condensation) |

# 4. Optical Fiber Module



① SFP-BL32TG-10DC is the optical fiber module of the Transmitter.
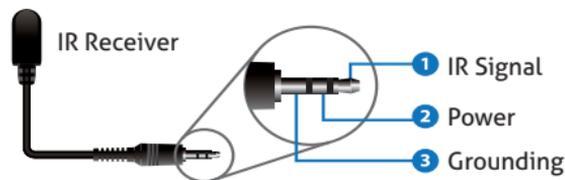② SFP-BL23TG-10DC is the optical fiber module of the Receiver.

# 5. IR Pin Definition

Recommended IR Receiver and Blaster pin's definition as below:

IR RECEIVER
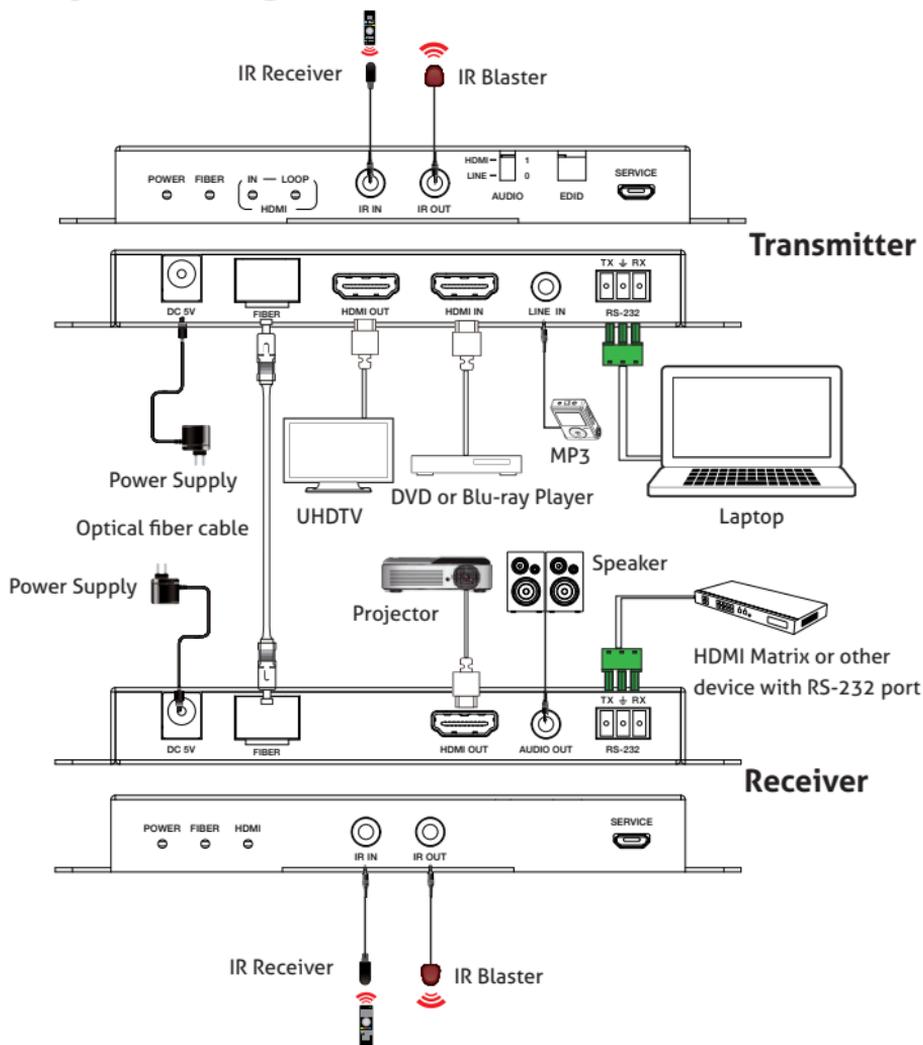
IR BLASTER

IR Blaster

① IR Blaster Signal

② Power

③ NC

IR Receiver

① IR Signal

② Power

③ Grounding
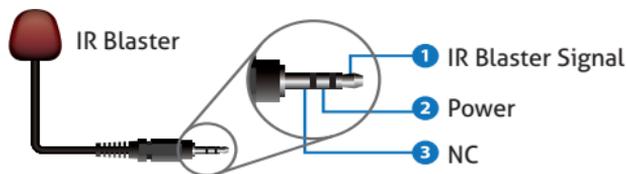
**Note:** The frequency of the blaster and receiver component and the pin out of the IR cables is 20-60KHz.

# 6. System Diagram



IR Receiver    IR Blaster

POWER  FIBER  IN — LOOP    HDMI 1 0 / LINE    SERVICE
                HDMI    IR IN  IR OUT  AUDIO  EDID

**Transmitter**

DC 5V  FIBER  HDMI OUT  HDMI IN  LINE IN  RS-232    TX ↓ RX

Power Supply

Optical fiber cable

UHDTV    DVD or Blu-ray Player    MP3    Laptop

Power Supply    Projector    Speaker

DC 5V  FIBER  HDMI OUT  AUDIO OUT  RS-232    TX ↓ RX

HDMI Matrix or other
device with RS-232 port

**Receiver**

POWER  FIBER  HDMI    IR IN  IR OUT    SERVICE

IR Receiver    IR Blaster

Usage Precaution
- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on

The following diagrams illustrate typical input and output connections that can be utilized with this transmitter:

HƏMI™
HIGH DEFINITION MULTIMEDIA INTERFACE

The terms HDMI and HDMI High-Definition Multimedia interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

# 7. After-Sales Service

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

1) **Product Limited Warranty:** This workmanship for **three years** (The Proof of purchase in the form of a bill of sale or receipted invoice which is 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 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 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:** 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.

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# Asking for Assistance

**Technical Support:**

Phone: +49 5971 800299

Fax: +49 5971 800299

**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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