**18Gbps** **HDMI** **over** **Optical** **Fiber** **Extender** **with** **Audio** **Extracting**



**VER** **1.0**

**Thank** **you** **for** **purchasing** **this** **product**

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

**Surge** **protection** **device** **recommended**

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

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**1.** **Introduction**

This HDMI Extender can extend HDMI signal up to 3300 feet/1000 meters (over single-mode fiber cable) or 1000 feet/300 meters (over multi-mode fiber cable). Video resolution is up to 4K2K@60Hz 4:4:4. Transmitter supports loop output, audio embeding and EDID managment 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.

**2.** **Features**

☆ HDMI 2.0b, HDCP 2.2 and DVI 1.0 compliant

☆ Support 18Gbps video bandwidth

☆ Video resolution up to 4k2k@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 3300 feet/1000 meters (over single-mode

fiber cable) or 1000 feet/300 meters (over multi-mode fiber cable) (50/ 125um/OM3)

☆ 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 embeding function

☆ Receiver supports audio extracting output function

☆ Compact design for easy and flexible installation

**3.** **Package** **Contents**

① 1× 18Gbps HDMI over Optical Fiber Extender (Transmitter)

② 1× 18Gbps HDMI over Optical Fiber Extender (Receiver)

③ 1× IR Blaster cable (1 .5 meters)

④ 1× IR Receiver cable (1 .5 meters)

⑤ 2× 5V/1A Power adapter

⑥ 2× 3-pin 3.81mm Phoenix connector

⑦ 1× User Manual

**4.** **Specifications**

|  |  |
| --- | --- |
| **Technical** | |
| HDMI Compliance | HDMI 2 0b |
| HDCP Compliance | HDCP 2.2 |
| Video Bandwidth | 18Gbps |
| Video Resolution | 480i ~1080p50/60Hz, 4Kx2K@24/30Hz, 4k2k@60Hz |
| Color Space | RGB, YCbCr 4:4:4 / 4:2:2, YUV 4:2:0 |
| Color Depth | 8/10/12-bit (1080P60Hz)  8-bit (4K60Hz) |
| 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 3300 feet/1000 meters over single-mode fiber cable Up to 1000 feet/300 meters over multi-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]  1 x LINE IN [3.5mm Stereo Mini-jack]  1 x IR IN [3.5mm Stereo Mini-jack]  1 x RS-232 [3.81mm Phoenix connector]  1 x SERVICE [Micro USB, Update port]  Output: 1 x HDMI OUT [Type A 19-pin female]  1 x Optical Fiber Out [LC female]  1 x IR OUT [3.5mm Stereo Mini-jack] |

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|  |  |  |
| --- | --- | --- |
| **1**  **2**  **3**  **4**  **5**  **6**  **7**  **13**  **10**  **11**  **12**  **14**  **1**  **0**  **AUDIO**  **SERVICE**  **HDMI**  **LINE**  **POWER** **FIBER**  **EDID**  **IR** **OUT**  **IR** **IN**  **IN** **LOOP**  **HDMI**   |  | | --- | |  |   Receiver | Input: 1 x Optical Fiber In [LC female]  1 x IR IN [3.5mm Stereo Mini-jack]  1 x SERVICE [Micro USB, Update port]  Output: 1 x HDMI OUT [Type A 19-pin female]  1 x RS-232 [3.81mm Phoenix connector]  1 x IR OUT [3.5mm Stereo Mini-jack]  1 x AUDIO OUT [3.5mm Stereo Mini-jack] |
| **Mechanical** |  |
| Housing | Metal Enclosure |
| Color | Black |
| Dimensions | Transmitter / Receiver:  134mm [W] x 68mm [D] x 18mm [H] |
| Weight | Transmitter: 280g, Receiver: 278g |
| Power Supply | Input: AC 100 - 240V 50/60Hz  Output: DC 5V/1A  (US/EU standards, CE/FCC/UL certified) |
| Power Consumption | Transmitter: 3.85 W (Max), Receiver: 2.7 W (Max) |
| Operating  Temperature | 32 - 104°F / 0 - 40°C |
| Storage Temperature | -4 - 140°F / -20 - 60°C |
| Relative Humidity | 20 - 90% RH (no condensation) |

**5.** **Operation** **Controls** **and** **Functions**

**5.1** **Transmitter** **Panel**

**8**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | |  | | --- | |  |   **FIBER** | **HDMI** **OUT** | **HDMI** **IN** | **LINE** **IN** | **RS-232** |  |
| **DC** **5V** |

**9**

|  |  |  |
| --- | --- | --- |
| **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. |
| 7 | EDID DIP  switch | Dial the switch to set EDID.  11: Copy RX HDMI OUT  10: Copy TX HDMI LOOP OUT  01: 4K60\_2CH  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. |

**5.2** **Receiver** **Panel**

**2**

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**10**

**11**

**1**

|  |
| --- |
| **SERVICE**  **POWER**  **FIBER**  **HDMI**    **IR** **OUT**  **IR** **IN** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | |  | | --- | |  |   **FIBER** | **HDMI** **OUT** | **AUDIO** **OUT** | **RS-232** |  |
| **DC** **5V** |

**9**

|  |  |  |
| --- | --- | --- |
| **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. |

**5.3** **IR** **Pin** **Definition**

IR Receiver and Blaster pin’s definition as below:



IR RECEIVER



IR BLASTER

IR Blaster

IR Receiver





IR Blaster Signal

Power

NC

IR Signal

Power

Grounding

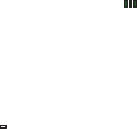
**5.3** **Optical** **Fiber** **Module**

**1**

**2**

① SFP-BL35T1-02DC is the optical fiber module of the Transmitter.

② SFP-BL531T-02DCis the optical fiber module of the Receiver.

**6.** **Application** **Example**



OPTICAL



IR Receiver

IR Blaster



**HDMI** **1**

**POWER** **FIBER**

**SERVICE**

**LINE** **0**

**AUDIO**

**IN** **LOOP**

**EDID**

**IR** **OUT**

**HDMI**

**IR** **IN**

**Transmitter**

**HDMI** **OUT**

**DC** **5V**

**HDMI** **IN**

**LINE** **IN**

**RS-232**

**FIBER**







Power Supply

|  |
| --- |
|  |

MP3



Optical fiber cable

DVD or Blu-ray Player

UHDTV

Laptop

   Speaker

Power Supply

Projector

HDMI Matrix or other device with RS-232 port

**AUDIO** **OUT**

**DC** **5V**

**HDMI** **OUT**

**RS-232**

**FIBER**

**Receiver**

**SERVICE**

**POWER** **FIBER** **HDMI**

**IR** **IN** **IR** **OUT**

|  |  |  |  |
| --- | --- | --- | --- |
| IR Receiver |  |  | IR Blaster |



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