# HDMI over Optical Fiber Extender

## User Manual

VER:1.4

## 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, lightning 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

The HDMI over Optical Fiber Extender can extend HDMI signal up to 4K Ultra HD over 3300 feet/1000 meters (Single-mode cable) or 1000 feet/300 meters (Multi-mode cable) to an HDMI compatible display. It also supports bi-directional infrared control and RS-232 signals transmission. It can allow you to easily control your DVD player at TV side or control your TV at the DVD player side when using this extender.

### 2. Features

- ♦ HDMI 2.0b (18Gbps), HDCP 2.2 and DVI compliant
- ♦ Video resolutions up to 4K2K@50/60Hz (YUV444)
- Audio supports LPCM2/5.1/7.1 CH, Dolby Digital, DTS, Dolby True HD, DTS-HD Master Audio
- Long distance transmission up to 3300 feet/1000 meters over single-mode fiber cable and up to 1000 feet/300 meters over multi-mode fiber cable (50/125µm/OM3)
- Bi-directional wideband infrared control and RS-232 transmission
- ♦ Locking power supply

# 3. Package Contents

- 1 x HDMI over Optical Fiber Transmitter
- ♦ 1 x HDMI over Optical Fiber Receiver
- ♦ 1 x Fiber Transmitter Module
- ↑ 1 x Fiber Receiver Module
   ♦ 2 x Wideband IR Blaster cable
- 2 x Wideballd II C blastel cable
- ♦ 2 x Wideband IR Receiver cable
- ♦ 2 x 5V/1A Power Adaptor
- ♦ 2 x Phoenix Male Jack
- ♦ 1 x User Manual

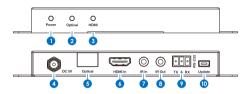
# 4. Specifications

| Technical          |   |
|--------------------|---|
| HDMI Compliance    | HDMI 2.0b   |
| HDCP Compliance    | HDCP 2.2 and HDCP 1.4   |
| Video Bandwidth    | 18 Gbps   |
| Video Resolutions  | Up to 4K2K@50/60Hz(YUV4:4:4),4K2K@30Hz,1080P@120Hz,             |
|                    | and 1080P 3D@60Hz   |
| Color Space        | RGB, YCbCr 4:4:4, YCbCr 4:2:2                                   |
| Color Depth        | 8-bit, 10-bit, 12-bit   |
| HDMI Audio Formats | LPCM 2/5.1/7.1CH, Dolby Digital, DTS 5.1, Dolby Digital+, Dolby |
|                    | TrueHD, DTS-HD Master Audio, Dolby Atmos, DTS:X                 |

| Operation Range         Up to 3300 feet/1000 meters over single-mode fiber cable           Up to 10000 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)           Connections           Inputs:         1x HDMI Type A [19-pin female]           1x Ri In [3.5mm Stereo Mini-jack]         1x Re-322 [3.8 tmm Phoenix connector]           Outputs:         1x Optical Fiber of Lift C female]           1x R Out [3.5mm Stereo Mini-jack]         Inputs:           1x Rout [3.5mm Stereo Mini-jack]         1x R In [3.5mm Stereo Mini-jack]           Receiver         Outputs:         1x R IN [3.5mm Stereo Mini-jack]           Mechanical         1x R Out [3.5mm Stereo Mini-jack]           Housing         Metal Enclosure           Color         Black           Dimensions         100mm [W] x 65mm [D] x 25.6mm [H]           Weight         TX: 256 RX: 260g           Power Supply         Input: AC100 - 240V 50/60Hz           Operation         32 - 10.4*F / 0 - 40*C           Temperature         34 - 14.0*F / -20 - 60*C   |                     |   |  |  |  |
|--|---------------------|---|--|--|--|
| R3-328 Bau Rate  | Operation Range     |   |  |  |  |
| Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge)   | IR Frequency        | 20KHz - 60KHz   |  |  |  |
| Display  | RS-232 Baud Rate    | 4800-115200bps  |  |  |  |
| Gischarge   Cischarge  | ESD Protection      | Human body model — ±8kV (air-gap discharge) & ±4kV (contact |  |  |  |
| Inputs: 1x HDMI Type A [19-pin female] 1x IR In [3.5mm Stereo Mini-jack] 1x IR In [3.5mm Stereo Mini-jack] 1x IR x B-323 [3.81mm Phoenix connector] Outputs: 1x Optical Fiber Out [1C female] 1x IR Out [3.5mm Stereo Mini-jack]   Inputs: 1x Optical Fiber In [LC female] 1x IR In [3.5mm Stereo Mini-jack]   Inputs: 1x Optical Fiber In [LC female] 1x IR Out [3.5mm Stereo Mini-jack] 1x IR Out [3.5mm Stereo Mini-jack] 1x IR Out [3.5mm Stereo Mini-jack] 1x IR S-232 [3.81mm Phoenix connector]   Mechanical  |                     | discharge)  |  |  |  |
| 1 x   R   n   3.5mm Stereo Mini-jack    1 x   R5-232   3.8 tmm Phoenix connector    Outputs: 1x Optical Fiber Out   LC female    1x   R Out   3.5mm Stereo Mini-jack    Inputs: 1x Optical Fiber in   LC female    1x   R   0.1   3.5mm Stereo Mini-jack      Inputs: 1x   NDM Type A   19-pin female    1x   R   0.1   3.5mm Stereo Mini-jack      1x   RS-232   3.8 tmm Phoenix connector  | Connections         |   |  |  |  |
| Transmitter  |                     | Inputs: 1x HDMI Type A [19-pin female]                      |  |  |  |
| Outputs: 1x Optical Fiber Out [LC female]   1x IR Out [3.5mm Sterce Min-ijack]   Inputs: 1x Optical Fiber In [LC female]   1x IR Out [3.5mm Sterce Min-ijack]   Inputs: 1x Optical Fiber In [LC female]   1x IR In [3.5mm Sterce Min-ijack]   Ix IR In [3.5mm Sterce Min-ijack]   Ix IR Out [3.5mm Sterce Min-ijack]   Ix  |                     | 1x IR In [3.5mm Stereo Mini-jack]                           |  |  |  |
| 1x   R Out   3.5mm Stereo Mini-jack    Inputs: 1x Optical Fiber in   [LC female    1x   R   1a,5mm Stereo Mini-jack    Outputs: 1x H DMI Type A   19-pin female    1x   R Out   3.5mm Stereo Mini-jack    Outputs: 1x H DMI Type A   19-pin female    1x   R Out   3.5mm Stereo Mini-jack    1x   | Transmitter         | 1x RS-232 [3.81mm Phoenix connector]                        |  |  |  |
| Inputs: 1x Optical Fiber In [LC female]   1x IR In [3.5mm Stereo Min-jack]   1x IR In [3.5mm Stereo Min-jack]   1x IR In [3.5mm Stereo Min-jack]   1x IR Out [3.5mm Stereo M |                     | Outputs: 1x Optical Fiber Out [LC female]                   |  |  |  |
| 1x   R   n   3.5mm Stareo Mini-jack     Outputs: 1x HOMI Type A   19-pin female     1x   R Out   3.5mm Stareo Mini-jack     Outputs: 1x HOMI Type A   19-pin female     1x   R Out   3.5mm Stareo Mini-jack     1x   R S-232   3.81mm Phoenix connector     Mechanical   Housing   Metal Enclosure   Color   Black     Dimensions   100mm   [W] x 65mm   [D] x 25.6mm   [H]     Weight   Tx: 256g RX: 260g     Power Supply   Output: D 5.741A ( US/EU standards , CE/FCC/UL certified)     Power Consumption   3W (Max)     Operation     Tamperature   32-104*F / 0 - 40*C     Storage temperature   4-140*F / -20 - 60*C  |                     | 1x IR Out [3.5mm Stereo Mini-jack]                          |  |  |  |
| Receiver   Outputs: 1x HDMI Type A [19-pin female]   |                     | Inputs: 1x Optical Fiber In [LC female]                     |  |  |  |
| 1x IR Out [3.5mm Stereo Mini-jack]   1x RS-232 [3.81mm Phoenix connector]  | Receiver            | 1x IR In [3.5mm Stereo Mini-jack]                           |  |  |  |
| 1 x RS-232 [3.81mm Phoenix connector]  |                     | Outputs: 1x HDMI Type A [19-pin female]                     |  |  |  |
| Metanical  |                     | 1x IR Out [3.5mm Stereo Mini-jack]                          |  |  |  |
| Housing   Metal Enclosure  |                     | 1x RS-232 [3.81mm Phoenix connector]                        |  |  |  |
| Color         Black           Dimensions         100mm [W] x 65mm [D] x 25.6mm [H]           Weight         TX: 256g RX: 260g           Power Supply         Input: AC100 - 240V 50/60Hz           Output: DC 5V/1A (US/EU standards, CE/FCC/UL certified)           Operation         3W (Max)           Temperature         32 -104°F / 0 - 40°C           Storage temperature         -4 - 140°F / -20 - 60°C   | Mechanical          |   |  |  |  |
| Dimensions   100mm [W] x 65mm [D] x 25.6mm [H]   Weight   Tx: 256g RX: 260g   Input: AC100 - 240V 50/60Hz   Output: DC 5V/1A (US/EU standards, CE/FCC/UL certified)   Power Consumption   3W (Max)   32-104°F / 0 - 40°C   Storage temperature   4-140°F / -20 - 60°C  | Housing             | Metal Enclosure   |  |  |  |
| Weight   TX: 256g RX: 260g   | Color               | Black   |  |  |  |
| Power Supply   | Dimensions          | 100mm [W] x 65mm [D] x 25.6mm [H]                           |  |  |  |
| Power Supply         Output: DC 5V/1A (US/EU standards, CE/FCC/UL certified)           Power Consumption         3W (Max)           Operation<br>Temperature         32-104°F / 0 - 40°C           Storage temperature         4-140°F / -20 - 60°C  | Weight              | TX: 256g RX: 260g   |  |  |  |
| Power Consumption         Output: DC SV/1A (US/EU standards, CE/FCC/UL certified)           3W/Moze         3W/Moze           Operation         32 -104°F / 0 - 40°C           Temperature         4-140°F / -20 - 60°C  | Power Supply        | Input: AC100 - 240V 50/60Hz                                 |  |  |  |
| Operation<br>Temperature         32 - 104°F / 0 - 40°C           Storage temperature         -4 - 140°F / -20 - 60°C   |                     | Output: DC 5V/1A (US/EU standards, CE/FCC/UL certified)     |  |  |  |
| 32 - 104 °F / 0 - 40 °C  | Power Consumption   | 3W (Max)  |  |  |  |
| Temperature  | Operation           | 20 40495 (0 4090  |  |  |  |
| • .  | Temperature         | 32-104 F/0-40 G   |  |  |  |
|  | Storage temperature | -4 -140°F / -20 - 60°C                                      |  |  |  |
| Relative Humidity 20 - 90% RH (no condensation)  | Relative Humidity   | 20 - 90% RH (no condensation)                               |  |  |  |

## 5. Operation Controls and Functions

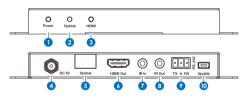
#### 5.1 Transmitter Panel



- Power LED: System power indicator.
- Optical LED: Optical link indicator, illuminates when transmitter and receiver establish optical link.
- HDMI LED: HDMI input signal indicator, illuminates when HDMI input has an active signal.
- Occ 5V: Connect 5V/1A adaptor for power supply.
- 6 Optical: Connect to receiver with a single or multi-mode fiber cable.
- HDMI In: Connect to an HDMI source device.
- 7 IR In: Connect to an IR receiver cable and put IR receiver header close to display device's IR receiver window.

- 8 IR Out: Connect to an IR emitter cable and put IR emitter header close to source device's IR receiver window.
- RS-232: RS-232 commands will pass through this extender.
- Update: Firmware updating port.

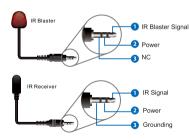
#### 5.2 Receiver Panel



- Power LED: System power indicator.
- Optical LED: Optical link indicator, illuminates when transmitter and receiver establish optical link.
- 3 HDMI LED: HDMI output connecting indicator, illuminates when HDMI output has an active TV be connecting.
- 4 DC 5V: Connect 5V/1A adaptor for power supply.
- 5 Optical: Connect to transmitter with a single or multi-mode fiber cable.

- 6 HDMI Out: Connect to an HDMI display device.
- IR In: Connect to an IR receiver cable and put IR receiver header close to display device's IR receiver window.
- IR Out: Connect to an IR emitter cable and put IR emitter header close to source device's IR receiver window.
- RS-232: RS-232 commands will pass through this extender.
- Update: Firmware updating port.

## 5.3 IR Cable Pin Assignments



## 5.4 Optical module instruction



- SFP-BL35T1-02DC is TX optical module.
- SFP-BL531T-02DC is RX optical module.

# **6.Connection Diagram**

