48Gbps HDMI over FIBER Extender (300m)

User Manual

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.

Table of Contents

1. Introduction

This is a pair of transmitter and receiver modules which can extend HDMI 2.1 video and audio signal up to 300m/984ft, over an OM4 fiber optic cable. It supports video resolution up to 8K@60Hz 4:2:0 or 4K@120Hz 4:4:4. It features Auto Low Latency and Variable Refresh Rate, along with 16 EDID presets.

This multi-functional product can be widely applied in scenarios of demonstration, video conference, multimedia teaching and other occassions.

2. Features

- ☆ Compliant with HDCP 2.3
- ☆ Support video bandwidth up to 48Gbps FRL and 18Gbps TMDS
- ☆ Video resolution up to 8K@60 4:2:0 12-bit, 4K@120Hz 4:4:4 12-bit, as specified in HDMI 2.1
- ☆ Transmission distance can be up to 300m/984ft over an OM4 fiber optic cable
- ☆ Multi-mode fiber grade OM2/3/4 compliant
- ☆ Support EDID learning function on Transmitter
- ☆ Support analog audio de-embedding on Receiver
- ☆ VRR, ALLM, QMS, QFT, SBTM are supported
- ☆ HDR, HDR10, HDR10+, Dolby Vision, HLG pass-through are supported
- ☆ HDMI audio formats support Dolby Atmos, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio
- ☆ Bi-directional IR & RS-232 pass-through

3. Package Contents

① 1× 48Gbps HDMI over FIBER Extender (TX)
② 1× 48Gbps HDMI over FIBER Extender (RX)
③ 1× IR Wideband Blaster Cable (1.5m)
④ 1× IR Wideband Receiver Cable (1.5m)
⑤ 2× 12V/1A Multinational Power Supply
⑥ 2× Power Adapter
⑦ 4× Mounting Ear
⑧ 8× Machine Screw (KM3*4)
⑨ 2× 3pin-3.5mm Phoenix Connector (male)
⑩ 1× User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	48Gbps FRL and 18Gbps TMDS
Video Resolution	Up to 8K@60 4:2:0 12-bit, 4K@120Hz 4:4:4 12-bit
Color Space	RGB 4:4:4, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Color Depth	8/10/12-bit
Audio Formats	**HDMI IN/OUT:** PCM 2.0, LPCM 5.1, LPCM 7.1, (32K/44.1K/48K/88.2K/96K/176.4K/192K) (16/20/24); Dolby Digital, Dolby Digital plus, Dolby TrueHD, Dolby Atmos; DTS Surround, 96/24, ES, DTS Express, DTS-HD HRA, DTS HD Master, DTS:X; **AUDIO BREAKOUT:** L/R OUT: PCM 2.0CH
Optical Fiber Transmission Distance	OM2: 40m/131ft OM3: 200m/656ft OM4: 300m/985ft (over 850nm OM2/3/4 multi-mode fiber optic cable)
IR Level	IR IN: 12V; Level: 3.2.04.00219 IR OUT: 5V; Level: 3.2.04.00093

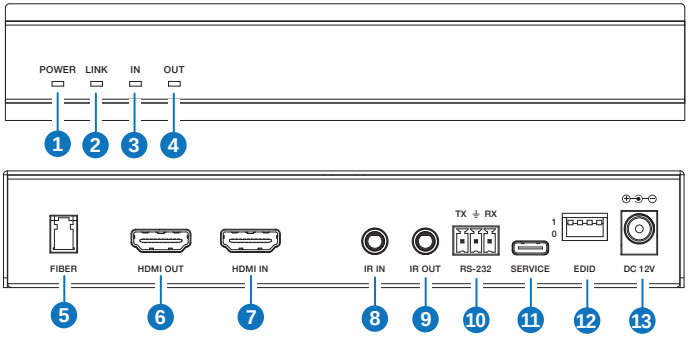
IR Frequency	Wideband 20K-60KHz
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge), ±4kV (Contact discharge)
Connection	
Transmitter	Input: 1× HDMI IN [Type A, 19-pin female] 1× IR IN [3.5mm audio jack] Output: 1× HDMI OUT [Type A, 19-pin female] 1× IR OUT [3.5mm audio jack] 1× FIBER [LC] Control: 1× RS-232 [3pin-3.5mm phoenix connector] 1× SERVICE [USB-C, update port]
Receiver	Input: 1× FIBER [LC] 1× IR IN [3.5mm audio jack] Output: 2× HDMI OUT [Type A, 19-pin female] 1× IR OUT [3.5mm audio jack] 1× AUDIO OUT [3.5mm audio jack] Control: 1× RS-232 [3pin-3.5mm phoenix connector] 1× SERVICE [USB-C, update port]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Transmitter / Receiver: 175mm [W] × 100mm [D] × 30mm [H]
Weight	Transmitter: 496g; Receiver: 492g
Power Supply	Input: AC 100~240V 50/60Hz Output: DC 12V/1A
Power Consumption	Transmitter: 6.7W (Max); Receiver: 4.5W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (non-condensing)

Recommended HDMI Cable

Video Resolution	8K	4K60	4K24	1080P
HDMI Cable Length (HDMI IN / OUT)	3m/10ft (Ultra HDMI 2.1)	8m/26ft	12m/39ft	15m/49ft
The use of “Premium High Speed HDMI” cable is highly recommended.				

5. Operation Controls and Functions

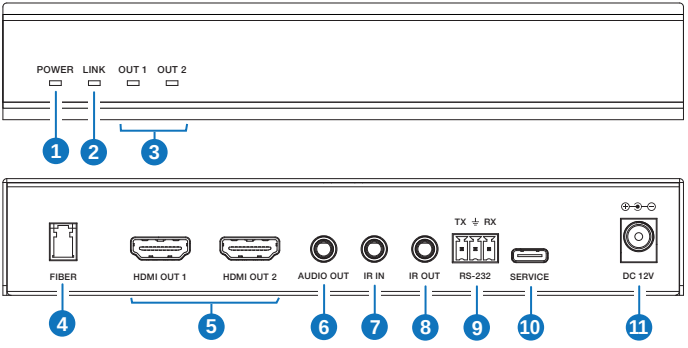
5.1 Transmitter Panel



No.	Name	Function Description
1	POWER LED	The red LED is on when the transmitter is powered on.
2	LINK LED	Connection signal indicator. ▪ **On:** Transmitter and Receiver are connected and signal is detected. ▪ **Blinking:** Transmitter and Receiver are connected but no signal is detected. ▪ **Off:** Transmitter and Receiver are not connected.
3	IN LED	The green LED is on when an input source is detected.
4	OUT LED	The green LED is on when a display device is connected.
5	FIBER	Output multi-mode and single-core fiber optical signal, including video, audio and communication signal.
6	HDMI OUT	HDMI signal loop out port, connected to an HDMI display device such as TV or monitor with HDMI cable.
7	HDMI IN	HDMI signal input port, connected to an HDMI source device such as DVD or computer host with HDMI cable.
8	IR IN	IR signal input port, connected to 12V IR wideband receiver.
9	IR OUT	IR signal output port, connected to 5V IR wideband blaster.
10	RS-232	3pin-3.5mm phoenix connector, connected to a PC or control system for RS-232 command pass-through.

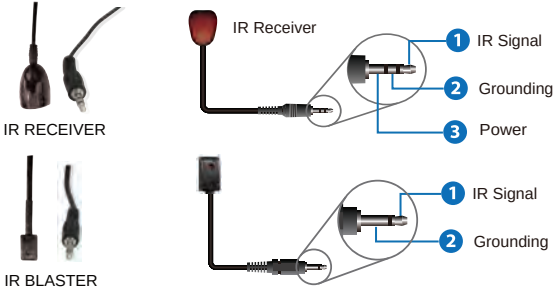
No.	Name	Function Description
11	SERVICE	Firmware update and debug port.
12	EDID	Used for EDID setting. [DIP]=1111: Copy sink EDID from HDMI OUT1 port on RX (default) [DIP]=1110: 1080P, 2.0CH [DIP]=1101: 1080P, 5.1CH [DIP]=1100: 1080P, 7.1CH [DIP]=1011: 4K60(444)_HDR, 2.0CH [DIP]=1010: 4K60(444)_HDR, 5.1CH [DIP]=1001: 4K60(444)_HDR, 7.1CH [DIP]=1000: 4K120(420)_HDR, 2.0CH [DIP]=0111: 4K120(420)_HDR, 5.1CH [DIP]=0110: 4K120(420)_HDR, 7.1CH [DIP]=0101: FRL10G_8K_HDR, 2.0CH [DIP]=0100: FRL10G_8K_HDR, 5.1CH [DIP]=0011: FRL10G_8K_HDR, 7.1CH [DIP]=0010: FRL12G_8K_HDR, 2.0CH [DIP]=0001: FRL12G_8K_HDR, 5.1CH [DIP]=0000: FRL12G_8K_HDR, 7.1CH
13	DC 12V	DC 12V/1A power input port.

5.2 Receiver Panel



No.	Name	Function Description
1	POWER LED	The red LED is on when the receiver is powered on.
2	LINK LED	Connection signal indicator. ▪ **On:** Transmitter and Receiver are connected and signal is detected. ▪ **Blinking:** Transmitter and Receiver are connected but no signal is detected. ▪ **Off:** Transmitter and Receiver are not connected.
3	OUT1/2 LED	The green LED is on when a display device is connected to the corresponding HDMI OUT port.
4	FIBER	Input multi-mode and single-core fiber optical signal, including video, audio and communication signal.
5	HDMI OUT1/2	HDMI signal output port, connected to HDMI display devices such as TV or monitor with HDMI cable.
6	AUDIO OUT	Analog audio output port.
7	IR IN	IR signal input port, connected to 12V IR wideband receiver.
8	IR OUT	IR signal output port, connected to 5V IR wideband blaster.
9	RS-232	3pin-3.5mm phoenix connector, connected to a PC or control system for RS-232 command pass-through.
10	SERVICE	Firmware update and debug port.
11	DC 12V	DC 12V/1A power input port.

6. IR Pin Definition



7. Application Example