



HDMI 2.0 Fiber Extender Kit, Single Mode Operation Manual (500485)



Table of Contents

1. Safety Precautions.....	3
2. Introduction.....	4
3. Features.....	4
4. Package Contents.....	4
5. Specifications.....	5
6. Panel Descriptions.....	6
6.1 Transmitter Unit.....	6
6.2 Receiver Unit.....	7
7. Connection Diagram.....	8
8. HDMI Pin Definition.....	9
9. Troubleshooting.....	9

1. Safety Precautions

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for future reference.

- Follow basic safety precautions to reduce the risk of fire, electrical shock, and injury.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burns.
- Do not open or remove the housing of the device as you may be exposed to dangerous voltage or other hazards.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture and do not install this product near water. Keep the product 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 the housing, unplug the module immediately.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Using supplies or parts not meeting the product specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- Install the device in a place with adequate ventilation to avoid damage caused by overheating.
- Unplug the power when left unused for a long period of time.
- Information on disposal of devices: do not burn or mix with general household waste, please treat them as normal electrical waste.

Copyright Notice

All contents in this manual are copyrighted, and cannot be cloned, copied, or translated without the express permission of MuxLab Inc. Product specifications and information in this document are for reference only, and the content may be updated from time to time without prior notice.

2. Introduction

The HDMI 2.0 Fiber Extender Kit, Single Mode (model: 500485) allows one HDMI 2.0 and one USB 1.1 channel to be transmitted up to 10km (6.25miles) at all resolutions up to 4K@60Hz over one duplex LC single mode fiber optic cable in a point-to-point configuration. In addition, the HDMI 2.0 Fiber Extender Kit, Single Mode is HDCP 2.2 compliant and supports IR and RS-232 pass-through and keyboard/mouse USB signal transmission.

3. Features

- Supports HDMI 4K @ 60fps (4:4:4 8bits)
- Supports HDR, which is 4K @ 60fps (4:2:0 10bits)
- Supports HDCP 2.2
- Extends HDMI signals up to 10km over single mode fiber optic cable with LC connectors
- Supports USB 1.1 for keyboard and mouse only
- Supports full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR pass-through
- Link LED indicator light
- Wall mounting housing design for easy and robust installation



The RS-232, IR and USB function cannot be used at the same time

4. Package Contents

- One (1) HDMI 2.0 Fiber Extender Kit, Single Mode [TX & RX]
- One (1) IR Blaster
- One (1) IR Receiver
- Two (2) PSU 12V DC
- Two (2) Single Mode Modules
- One (1) Wall bracket kit (with screws)
- One (1) User manual (available via download)

Notes: Confirm that the product and accessories are all included. If not, please contact the supplier from which you purchased the unit.

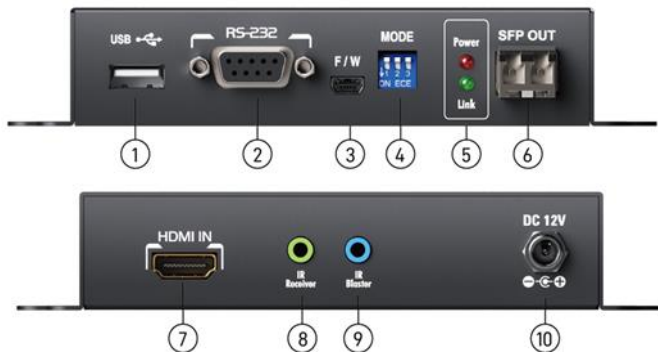
5. Specifications

Technical	
HDMI compliance	HDMI 2.0a
HDCP compliance	HDCP 2.2
Video bandwidth	Single-link 594MHz [18Gbps]
Video support	HDR 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits)
Audio support	Surround sound [up to 7.1ch] or stereo digital audio
Input TMDS signal	1.2 Volts [peak-to-peak]
Input DDC signal	5 Volts [peak-to-peak, TTL]
ESD protection	Human body model ±15kV [air-gap discharge] & ±8kV [contact discharge]
PCB stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]
IR pass-thru	Bi-directional
RS-232 support	Yes
Input Ports	Transmitter [TX] 1x HDMI, 1x 3.5mm Receiver [RX] 1x Duplex LC SMF, 1x 3.5mm
Output Ports	Transmitter [TX] 1x Duplex LC SMF, 1x 3.5mm Receiver [RX] 1x HDMI, 1x 3.5mm
In / Out Ports	Transmitter [TX] 1x RS-232, 1x USB Receiver [RX] 1x RS-232, 2x USB
HDMI source control	Controllable via IR pass-through from RX to TX with IR extenders
HDMI connector	Type A [19-pin female]
USB connector	Type A
3.5mm connector	Transmitter [TX] IR receiver / IR blaster Receiver [RX] IR receiver / IR blaster
Mechanical	
Housing	Metal enclosure
Unit Dimensions (DxWxH)	Transmitter [TX] 4.9" x 4.4" x 1.1" (125mm x 112mm x 28mm) Receiver [RX] 4.9" x 4.4" x 1.1" (125mm x 112mm x 28mm)

Unit Weight	Transmitter [TX] 1.02 lbs (0.46Kg) Receiver [RX] 1.00 lbs (0.45Kg)
Wall-Mounting Hardware	Wall-mount bracket kit, with screws
Power supply	12V2A
Power consumption	Max 10W
Operation temperature	0~40°C [32~104°F]
Storage temperature	-20~60°C [-4~140°F]
Relative humidity	20~90% RH [no condensation]
Warranty	2 years
Order Information	500485 HDMI 2.0 Fiber Extender Kit, Single Mode (UPC: 627699004852)

6. Panel Descriptions

6.1 Transmitter Unit



No	Name	Function Description
1	USB [Host]	Connect to a USB port to the computer for keyboard & mouse control
2	RS-232	Connect to serial port of the device with a DB-9 male-male or male-female cable
3	Mini USB	For technical support only [firmware update]

4	Dip Switch	PIN # 1	ON [↓]	For system firmware update
			OFF [↑]	Normal
		PIN # 2	ON [↓]	USB function ON
			OFF [↑]	RS-232/IR function ON
		PIN # 3	ON [↓]	Disable IR function
			OFF [↑]	Enable IR function
5	LED Indicator	[Red]: Power LED indicator [Green]: Link LED indicator		
6	SFP OUT	Plug in single mode fiber optic cable that needs to be linked to the receiver unit		
7	HDMI IN	Connect to a HDMI source with a HDMI male-male cable		
8	IR Receiver	3.5mm IR socket to plug in the IR receiver extension cable		
9	IR Blaster	3.5mm IR socket to plug in the IR blaster extension cable		
10	+12V DC	Connect to a 12V power supply unit		

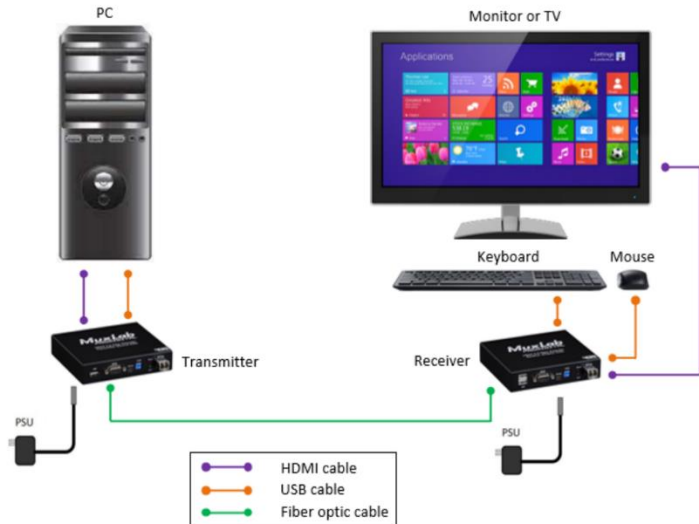
6.2 Receiver Unit



No	Name	Function Description
1	USB [Device]	Connect to USB keyboard & mouse
2	RS-232	Connect to serial port of the device with a DB-9 male-male or male-female cable

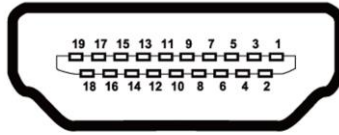
3	Mini USB	For technical support only [firmware update]		
4	Dip Switch	PIN # 1	ON [↓]	For system firmware update
			OFF [↑]	Normal
		PIN # 2	ON [↓]	USB function ON
			OFF [↑]	RS-232/IR function ON
		PIN # 3	ON [↓]	Disable IR function
			OFF [↑]	Enable IR function
5	LED Indicator	[Red]: Power LED indicator [Green]: Link LED indicator		
6	SFP IN	Plug in single mode fiber optic cable that needs to be linked to the transmitter unit		
7	HDMI OUT	Connect to a HDMI display with a HDMI male-male cable		
8	IR Receiver	3.5mm IR socket to plug in the IR receiver extension cable		
9	IR Blaster	3.5mm IR socket to plug in the IR blaster extension cable		
10	+12V DC	Connect to a 12V power supply unit		

7. Connection Diagram



(Note: IR sensor and emitter not shown in above diagram.)

8. HDMI Pin Definition



Pin 1	TMDS Data2+	Pin 11	TMDS Clock Shield
Pin 2	TMDS Data2 Shield	Pin 12	TMDS Clock-
Pin 3	TMDS Data2-	Pin 13	CEC
Pin 4	TMDS Data1+	Pin 14	Reserved (N.C. on device)
Pin 5	TMDS Data1 Shield	Pin 15	SCL
Pin 6	TMDS Data1-	Pin 16	SDA
Pin 7	TMDS Data0+	Pin 17	DDC/CEC Ground
Pin 8	TMDS Data0 Shield	Pin 18	+5V Power
Pin 9	TMDS Data0-	Pin 19	Hot Plug Detect
Pin 10	TMDS Clock+		

9. Troubleshooting

The following table describes some of the symptoms and possible solutions regarding the HDMI 2.0 Fiber Extender Kit, Single Mode

Symptom	Probable Cause	Possible Solutions
No Image	No Power	Check power connections
No Image	Fiber optic cable	Check the fiber optic cable
No Image	HDMI Cable	Check the HDMI cable
No Image	Cable length	Check cable length, check with another monitor.
Flickering Image or bad sound	Cable length	Check cable length / Check the HDMI cable.
USB not working, but audio/video OK	USB cable, or too much power required for USB peripheral.	Check USB cable or try another USB device.

If you still cannot diagnose the problem, please call MuxLab Customer Technical Support at 877-689-5228 (toll-free in North America) or (+1) 514-905-0588 (International).



MuxLab Inc.
2321 Rue Cohen
Montreal, Quebec
Canada H4R 2N7
Tel.: +1 (514) 905-0588 Fax: +1 (514) 905-0589
Toll Free (North America): 877 689-5228
URL: www.muxlab.com
E-mail: info@muxlab.com