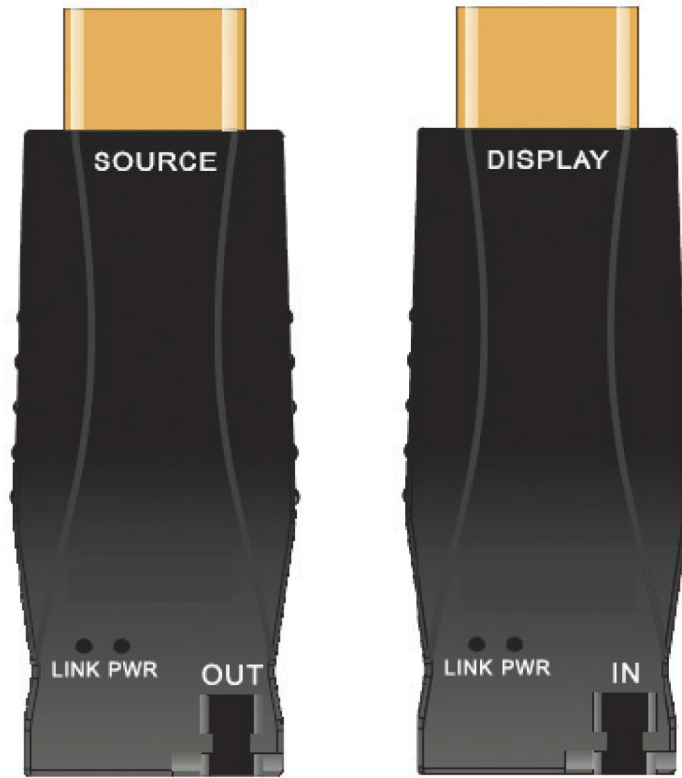


# USER MANUAL



HDMI Extender 1.4a Fiber Extender Module 1LC-300 Meter

Part No: 47-450-010

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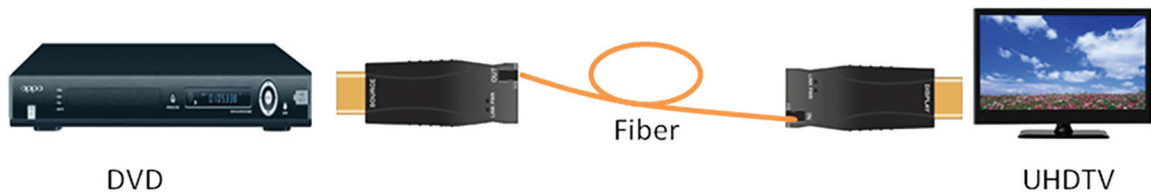
## Introduction

The EHF-110 are compact optical extension modules that connect with LC terminated fiber cables. Communication on the fiber line is bidirectional so that only one fiber is needed to send video data and HDCP - up to 300 meters with OM3 cables.

## Features

- Resolutions up to 3840\*2160/30Hz(Y:U:V 4:4:4)
- Extend the HDMI signal up to 300 meters over OM3 MMF or SMF Fiber
- Supports HDCP
- Fits standard LC fiber connectors
- Compact module design to fit into small areas
- Includes two +5V DC power adapters for the transmitter and receiver
- Data security with negligible RFI/EMI emissions and loss of video quality

## Application Diagram



## Package Contents

- Transmitter (x1)
- Receiver (x1)
- AC 110V-240V to DC 5V 1A power adapters (x2)

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## Technical Specifications

	Parameter	Specifications
Resolution	4k*2k 30Hz	3840x2160/30Hz (YUV 4:4:4)
	4k*2k 60Hz	3840x2160/60Hz.(YUV 4:2:0)
Components	Laser Diodes in Tx Module	1310nm FP laser and 1550nm PIN PD
	Photo Diodes in Rx Module	1550nm FP laser and 1310nm PIN PD
	WDM filter	Integrated 1310nm/1550nm filter
Electrical	Input and Output Signals	TMDS Level (complying with DVI1.0)
	Data Transfer Rate (Graphic Data)	Max. 3.4Gbps
	Maximum Pixel Clock Frequency	340Mb/s
	Maximum Video Bit Rate	10.3Gb/s
	Total Jitter at the end of Rx output	Max. 309 ps
	Skew inter-channels	Max. 6ns
Optical	Link Power Budget	Min 8.5dB
Mechanical	Module dimension (mm)	59.5LX20.0WX10.5H
Connector	Optical Connector	1X LC connector
	Electric Connector	HDMI plug
	Recommended Fiber	OM3 MM Fiber or Single-mode Fiber
Extend Distance		300m

## Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Supply Voltage	VCC	- 0.3	+ 6.0	V
Input and Output Voltage	Vin/out	- 0.3	VCC	V
Operating Temperature	Top	0	70	°C
Operating Relative Humidity	RHop	5	80*	%RH
Storage Temperature	Tsto	- 40	+ 85	°C
Storage Relative Humidity	RHsto	5	95*	%RH

HDMI Extender 1.4a Fiber Extender Module 1LC-300 Meter

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## Operating Conditions

### Transmitter Module

	Parameter	Symbol	Minimum	Typical	Maximum	Units
Power Supply	Supply Voltage	Vcc	4.5	5.0	5.5	V
	Supply Current	ITcc	-	280	320	mA
	Power Dissipation	PRX	-	1.4	1.76	W
	Power Supply Rejection	PSR		50		mVp-p
TMDS	Data Input Load	RLD		50		$\Omega$
	Graphic Supply Voltage	GVCC	+ 3.1	+ 3.3	+ 3.5	V
	Single-Ended Output Swing Voltage	GVISWING	0.4	-	0.8	V
Optical Link	<b>10.2Gb/s transmitter</b>					
	Optical output Power	Po	-6.0		0	dBm
	Data Rate	B		10.3		Gb/s
	Receiving Wavelength	$\lambda$	1260	1310	1360	nm
	ER	Er	3.5		7	dBm
	$\Delta\lambda$				2	nm
	<b>250Mb/s Receiver</b>					
	Receiving Optical Power	Po	-25		0	dBm
	Data Rate	B		250		Mb/s
	Receiving Wavelength	$\lambda$	1490	1550	1610	nm
	Signal Detect Good	SDg			-25	dBm
	Signal Detect Fail	SDf	-27			dBm
	Link Power Budget	Pbgt	9.0			dB
	Total Jitter	TRjitter			309	ps

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## Operating Conditions

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### Receiver Module

	Parameter	Symbol	Minimum	Typical	Maximum	Units
Power Supply	Supply Voltage	Vcc	4.5	5.0	5.5	V
	Supply Current	IRcc	-	280	320	mA
	Power Dissipation	PRX	-	1.4	1.76	W
	Power Supply Rejection	PSR		50		mVp-p
TMDS	Data Input Load	RLD		50		$\Omega$
	Graphic Supply Voltage	GVCC	+ 3.1	+ 3.3	+ 3.5	V
	Single-Ended Output Swing Voltage	GVISWING	0.4	-	0.8	V
Optical Link	<b>10.2Gb/s transmitter</b>					
	Receiving Optical Power	Po	-14.5		0	dBm
	Data Rate	B		10.3		Gb/s
	Receiving Wavelength	$\lambda$	1260	1310	1360	nm
	Signal Detect Good	SDg			-14	dBm
	Signal Detect Fail	SDf	-15			dBm
	Link Power Budget	Pbgt	8.5			dB
	Total Jitter	TRjitter			309	ps
	<b>250Mb/s Receiver</b>					
	Optical output Power	Po	-9.0		0	dBm
	Data Rate	B		250		Mb/s
	Receiving Wavelength	$\lambda$	1490	1550	1610	nm
	ER	Er	9			dBm
	$\Delta\lambda$				4	nm

### Recommended Specifications

Note\*: some plastic couplers to clamp two LC connectors could not fit in.

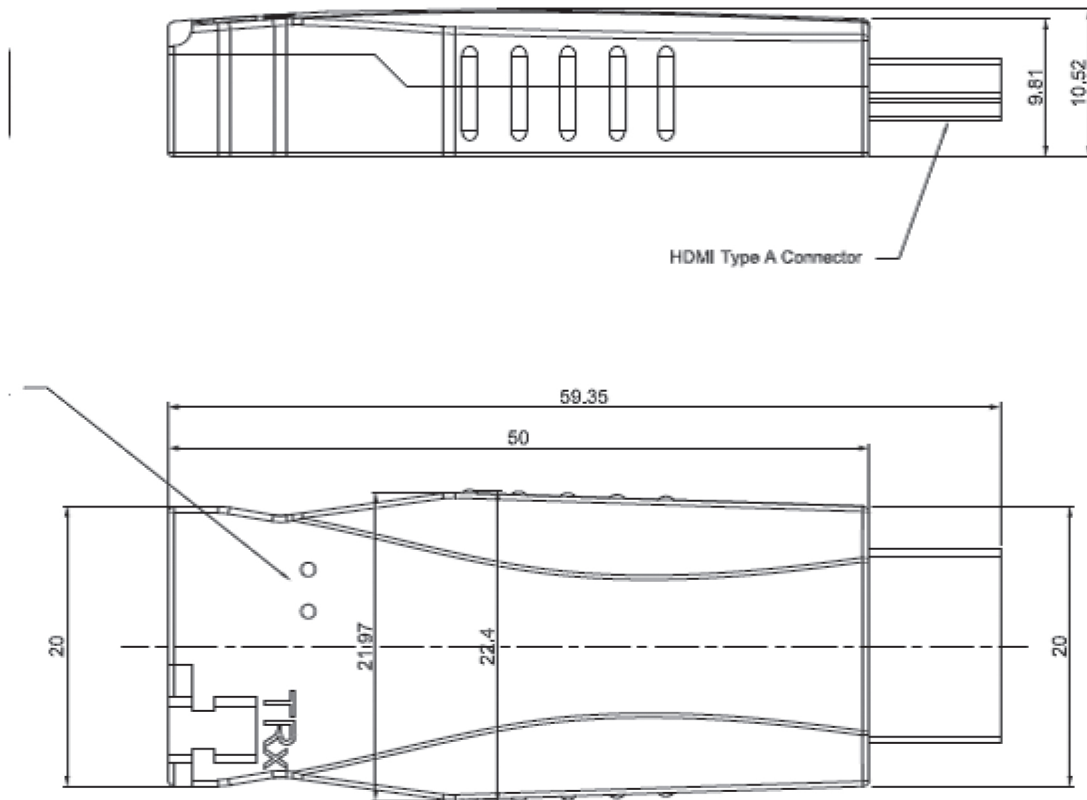
Parameters	Conditions	Specifications
Fiber Type		OM3 MM Fiber or SM Fiber
Fiber Cable Attenuation	SM Fiber $\lambda = 1310\text{nm}$	Max. 0.5dB/km
	OM3 MM Fiber $\lambda = 1310\text{nm}$	Max. 3.5dB/km
Extension Distance	SM Fiber	300m
	OM3 MM Fiber	300 m
Skew		Max. 0.4ns
Insertion Attenuation		Max. 0.5dB
Total Optical Attenuation	In 330 ft (100 meter) extension	Max. 1.5dB

HDMI Extender 1.4a Fiber Extender Module 1LC-300 Meter

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## Drawing

### Dimension [mm]



## Installation:

**Note:** Please install the optic HDMI extender according to the following steps, if not, the extender might not work.

1. Connect the transmitter to the video source and connect the receiver to the display
2. Connect the fiber cable between the transmitter and receiver
3. Connect the External Power Supply to transmitter and receiver and power up the system

# HDMI Extender 1.4a Fiber Extender Module 1LC-300 Meter

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## Warranty

Parts and labor warranty time is three year and from the date of original shipment. This warranty shall be void if a serial number has been removed from the product.

Upon determination of a legitimate defect covered by this warranty and at COVID's sole discretion, user should bear the transport cost during the warranty.

If product is out of warranty then repair charge is required. Out of warranty repairs will only be made after cost has been approved by Customers and proper financial arrangements are made. Customer must cover round trip shipment expenses.

## Safety Information



To reduce the risk of electric shock, do not expose this product to rain or moisture.



Do not modify the wall plug. Doing so will void the warranty and safety features.



If the wall plug does not fit into your local power socket, hire an electrician to replace your obsolete socket.



This equipment should be installed near the socket outlet and the device should be easily accessible in the case it requires disconnection.