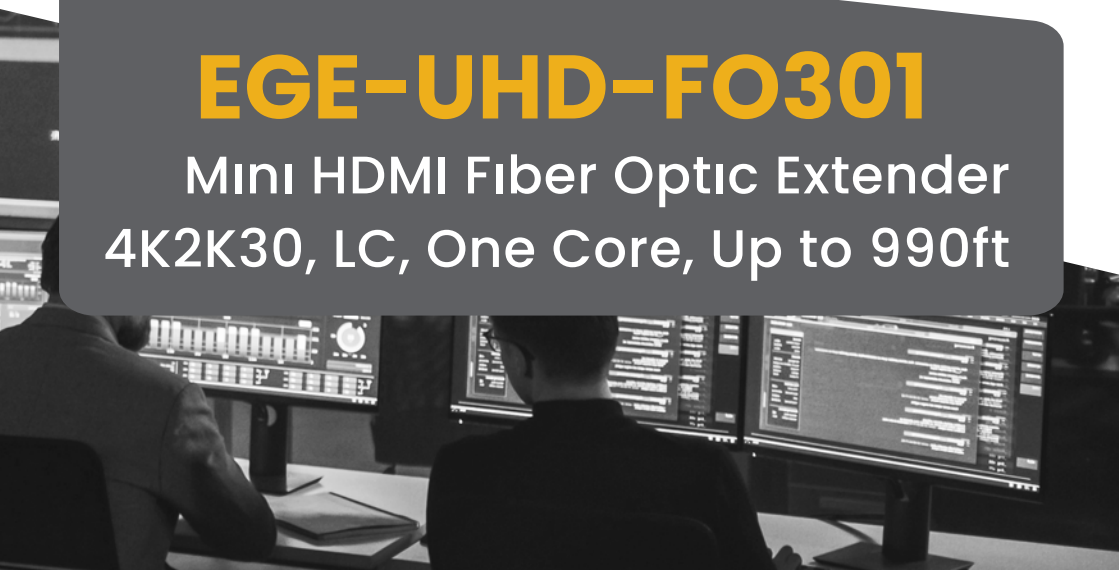
geratech®

EGE-UHD-FO301

Mini HDMI Fiber Optic Extender 4K2K30, LC, One Core, Up to 990ft



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

The optical extension module consists of transmitter module and receiver module, each of which has a LC connectors and a HDMI plug. Users could decide extension length at their discretion by choosing the length of fibre-optic cables with LC ferrules at the ends. It offers graphic TMDS signals to be extensible up to the limits of modal bandwidth of selected OM3 multi-mode glass fibers or Single-Mode fibers.

The communication between the TX and RX is bidirectional ,the data rate from the –T to –R is 10.2Gb/s with 1310nm, and from the –R to –T is 250Mb/s with1550nm, the 1310nm and 1550nm optical signals are multiplexed to one fiber with a 1310/1550nm WDM filter insider the HDMI extender.

The HDMI Extender compliant HDMI 1.4 standard, It Support resolution is up to 3840*2016/30Hz (YUV 4:4:4) or 3840*2016/60Hz (YUV 4:2:0). It support distance up to 300m over OM3 MMF and SMF.

2. Features

- Resolution up to 3840*2160/30Hz(Y:U:V 4:4:4);
- Support resolution 3840*2160/30Hz(Y:U:V 4:2:0)
- Extend the HDMI data up to 300 meters over OM3 MMF or SMF Fiber;
- Support HDCP;
- Detachable feature with 1x LC OM3 MM Fiber or SM Fiber;
- Includes two (2) +5V DC power adapters for the transmitter and receiver
- Micro USB-B power connector;
- Data security with negligible RFI/EMI emissions and loss of video quality due to no copper conductor present

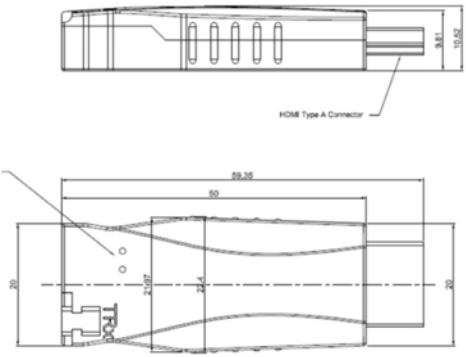
3. Specifications

	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
	Fiber connector	OM3 MM Fiber or Single-mode Fiber

4. Packing

Receiver	1	pcs
Transmitter	1	pcs
USB power cable/power adapter(DC 5V)	2	pcs

4.1 Product drawing:

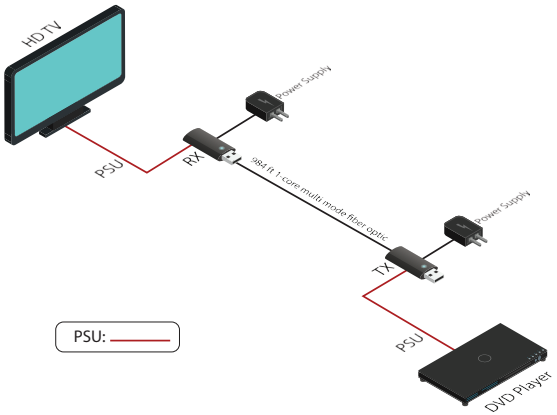


5. Operation Transmitter

	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		Ω
	Graphic Supply Voltage	GVCC	+ 3.1	+ 3.3	+ 3.5	V
	Single-Ended Output	GVISWING	0.4	-	0.8	V

	Swing Voltage					
Optical Link	**10.2Gb/s transmitter**					
	Optical output Power	Po	-6.0		0	dBm
	Data Rate	B		10.3		Gb/s
	Receiving Wavelength	λ	1260	1310	1360	nm
	ER	Er	3.5		7	dBm
	Δλ				2	nm
	250Mb/s Receiver					
	Receiving Optical Power	Po	-25		0	dBm
	Data Rate	B		250		Mb/s
	Receiving Wavelength	λ	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

6. DIAGRAM



Receiver

	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 Output Load	RLD		50		Ω
	Graphic Supply Voltage	GVCC	+ 3.1	+ 3.3	+ 3.5	V
	Single-Ended Output Swing Voltage	GVISWING	0.4	-	0.8	V
Optical Link	**10.2Gb/s Receiver**					
	Receiving Optical Power	Po	-14.5		0	dBm
	Data Rate	B		10.3		Gb/s
	Receiving Wavelength	λ	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
	250Mb/s Transmitter					
	Optical output Power	Po	-9.0		-3	dBm
	Data Rate	B		250		Mb/s
	Receiving Wavelength	λ	1490	1550	1610	nm
	ER	Er	9			dBm

Recommended Specifications of Fibre-Optic Cables

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 λ = 1310nm	Max. 0.5dB/km
	OM3 MM Fiber λ = 1310nm	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

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