User Manual

WolfPack 4K 30 Hz HDMI over Fiber Extender

1. Introduction

HDTV-FIBER-HD103T 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 HDTV-FIBER-HD103T and HDTV-FIBER-HD103R 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 HDTV-FIBER-HD103T 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 DVI 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

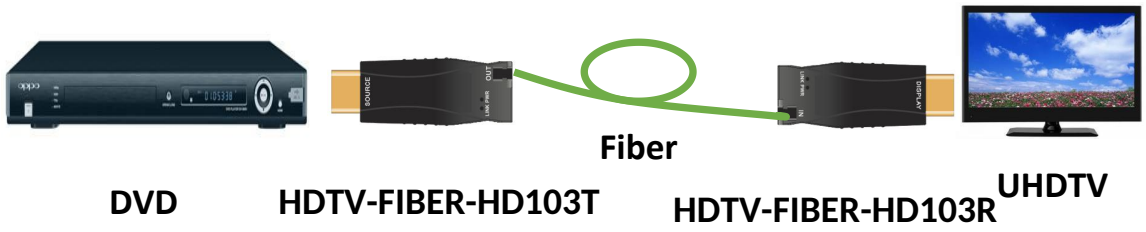
3. Specification

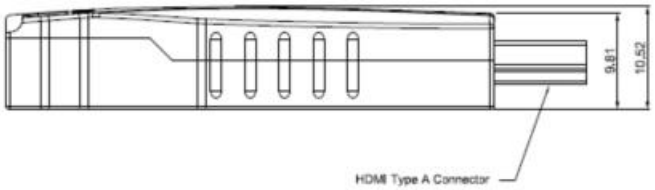
	Parameter	Specifications
Resolution	4k*2k 30Hz	3840x2160/30Hz (YUV 4:4:4)
	4k*2k 60Hz	3840x2160/60Hz.(YUV 4:2:0)
Components	Laser Diodes in Tx Module	1310nm FP laser and 1550nm PIN PD
	Photo Diodes in Rx Module	1550nm FP laser and 1310nm PIN PD
	WDM filter	Integrated 1310nm/1550nm filter
Electrical	Input 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

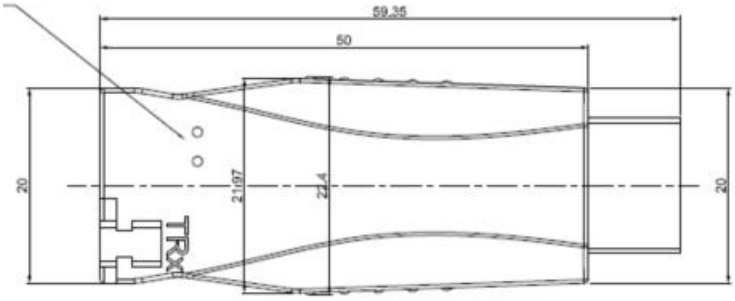
4. Packing

FIBER-HD-110-R(Receiver)	1	pcs
FIBER-HD-110-T(Transmitter)	1	pcs
USB power cable/power adapter(DC 5V)	2	pcs

4. Product Connection Diagram and drawing:







5. Operation

Transmitter: HDTV-FIBER-HD103T

	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 Swing Voltage	GVISWING	0.4	-	0.8	V
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

Receiver: HDTV-FIBER-HD103R

	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

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

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