

# 4K@30Hz HDMI 1.4 Fiber Optic Converter



LM-THF123HB

## Overview

HDMI 1.4 fiber optic converter is developed by our company, with independent intellectual property rights. Absorbed the advantages of similar products at home and abroad, combined with the actual demand of the market, we designed the 4K30Hz HDMI fiber optic converter. The device can transmit 1 channel 4K30Hz HDMI video, 1 channel bidirectional RS232/RS485 data through one core optical fiber, realizing no delay, no compression, high-quality signal extension of 10km.

HDMI 1.4 fiber optic converter its optical module and core circuit are imported components, performance stability, the equipment adopts integrated circuit design, concise design, has easy installation and debugging, maintenance free, industrial-grade wide temperature range design, at the same time because of the use of optical fiber as the transmission medium, so the performance is excellent, high temperature, cold resistance, can effectively prevent strong electromagnetic wave radiation interference, lightning shock and power surge, communication quality is stable and reliable.

## Application

1. Stage rental;
2. LED large screen;
3. Projection fusion;

- 4.Live TV broadcasting;
- 5.Radio and television recording;
- 6.Video conferencing;
- 7.Information release and display system;
- 8.Command and dispatch center;

#### Ordering information

S.no	Product Configuration	Fiber Connector
1	1 channel 4K30Hz HDMI video and 1 channel bidirectional RS232 data	LC
2	1 channel 4K30Hz HDMI video and 1 channel bidirectional RS485 data	LC

#### Features

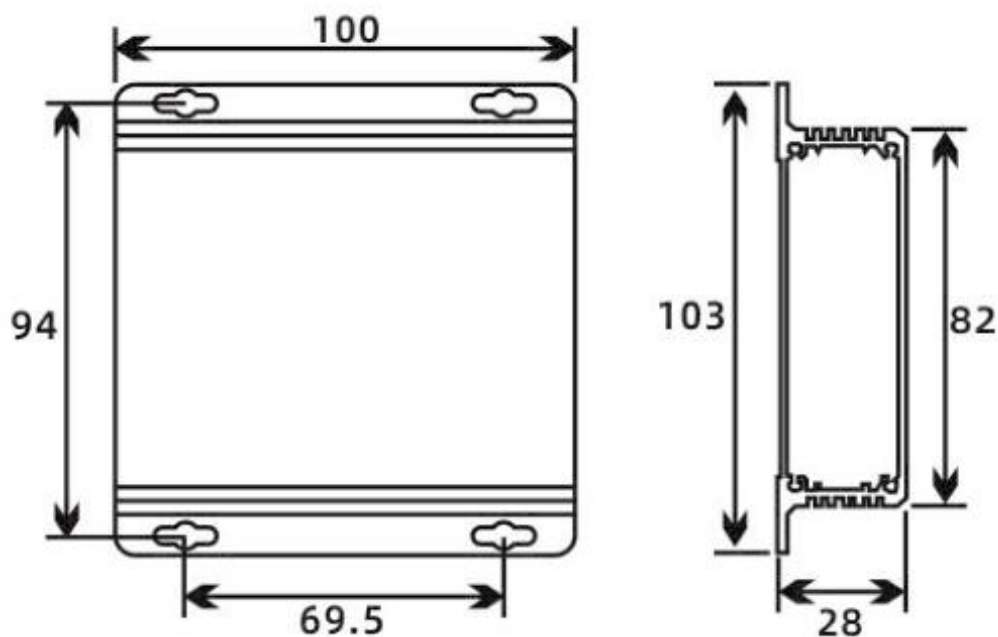
- 1.Video complies with the HDMI 1.4 specification;
- 2.Support DVI 1.0 standard;
- 3.Support RGB, YUV4:4:4/4:2:2/4:2:0 video format;
- 4.Support EDID management function,support built-in EDID/automatic learning EDID switch;
- 5.Support EDID memory storage function after power off
- 6.Support bidirectional RS232/RS485 serial port data transmission;
- 7.Support status light display;
- 8.Support card type for 2U16 slot chassis, centralized management;
- 9.Support the mutual communication with our DVI 1.0 series;
- 10.Single-mode 10KM transmission distance;
- 11.Support the power socket with lock to prevent the equipment from falling off during operation;
- 12.Support hot swap signal, plug and play, no setting required;

#### Specifications

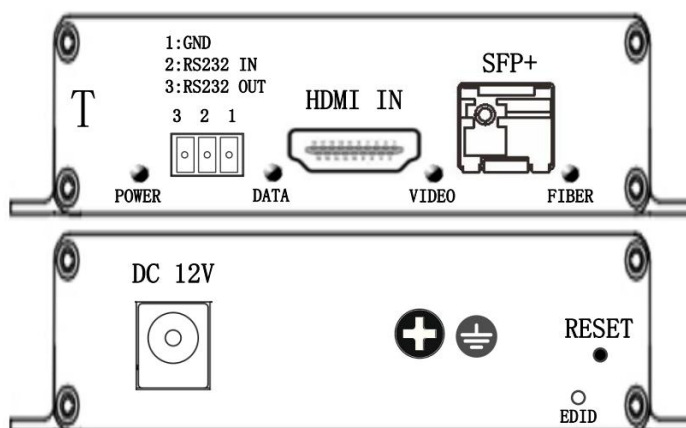
Fiber parameter	
Wavelength	1310-1550nm
Rate	10Gbps
Transmitter power	> -3db
Receiver sensitivity	> -10db
Optical module parameter	Single fiber single mode 10km
Fiber connector	LC
Video parameter	
HDMI standard	HDMI 1.4
Video bandwidth	10Gbps
Resolution	480i ~1080p50/60Hz, 4Kx2K@24/30Hz
Color space	RGB, YCbCr 4:4:4 / 4:2:2, YUV 4:2:0
Maximum pixel clock	297MHZ

Effective cable length	≤10M
Physical interface	HDMI female
<b>Data parameter</b>	
Standard	Complies with EIA RS-232, RS-485 standards
Physical interface	Industrial terminal blocks/3.81mm
Baud rate	50bps to 115200kbps (Supports non-standard baud rates)
RS232	3-wire system (RXD, TXD, GND), full duplex, point-to-point communication
RS485	2-wire (A, B), half duplex, point-to-multi master-slave communication
<b>RS485 circuit parameter</b>	
RS-485 pull-up resistance/pull-down resistance	4.7 kΩ, 4.7 kΩ
RS-485 terminal resistance	N/A、120 Ω and 120 kΩ
<b>Power parameter</b>	
Power supply mode	DC 12V power supply
Power dissipation	<2W
Overload current protection	Yes
Short-circuit protection	Yes
<b>Mechanical parameter</b>	
Material	Aluminum alloy
Product size	104*103*28mm
Net weight of product	0.4Kg/Pair
Way to install	Desktop type
<b>Package</b>	
Package material	Kraft paper
Weight	0.7kg/Unit
Package size	275*220*55mm
<b>Environment</b>	
Working temperature	-20°C ~75°C
Storage temperature	-40°C ~85°C
Relative humidity	From 5 to 95% (non-condensing)
MTBF	> 100,000 hours

## Dimension Drawing (mm)



#### Transmitter panel printed / indicator description



#### Front panel

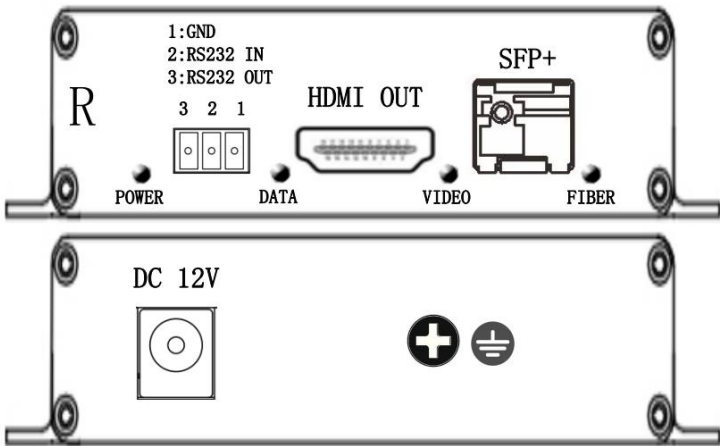
HDMI IN	HDMI signal input	
RS232	1 GND	Ground wire
	2 RS232 IN	Input
	3 RS232 OUT	Output
SFP+	10G SFP fiber module	

#### Back panel

DC 12V	DC 12V power supply
RESET	EDID management function (built-in EDID/automatic EDID learning)

Indicator	
FIBER	Light on : fiber signal Light off : no fiber signal
VIDEO	Light on : video signal Light off : no video signal
DATA	Blinking: data signal Off : no data signal
POWER	On: the device is powered on Off: the device is powered off
EDID	1.Press and hold the RESET button on the transmitter for 3 seconds, the EDID lights up;then release the RESET button, the device enters the EDID learning function,then EDID light is off. 2.Press and hold the RESET button on the transmitter for 10 seconds, the EDID lights up, then release the RESET button, the device returns to its factory settings,then EDID light is off.

Receiver panel printed / indicator description



Front panel		
HDMI OUT	HDMI signal output	
RS232	1 GND	Ground wire
	2 RS232 IN	Input
	3 RS232 OUT	Output
SFP+	10G SFP fiber module	

Back panel	
DC 12V	DC 12V power supply

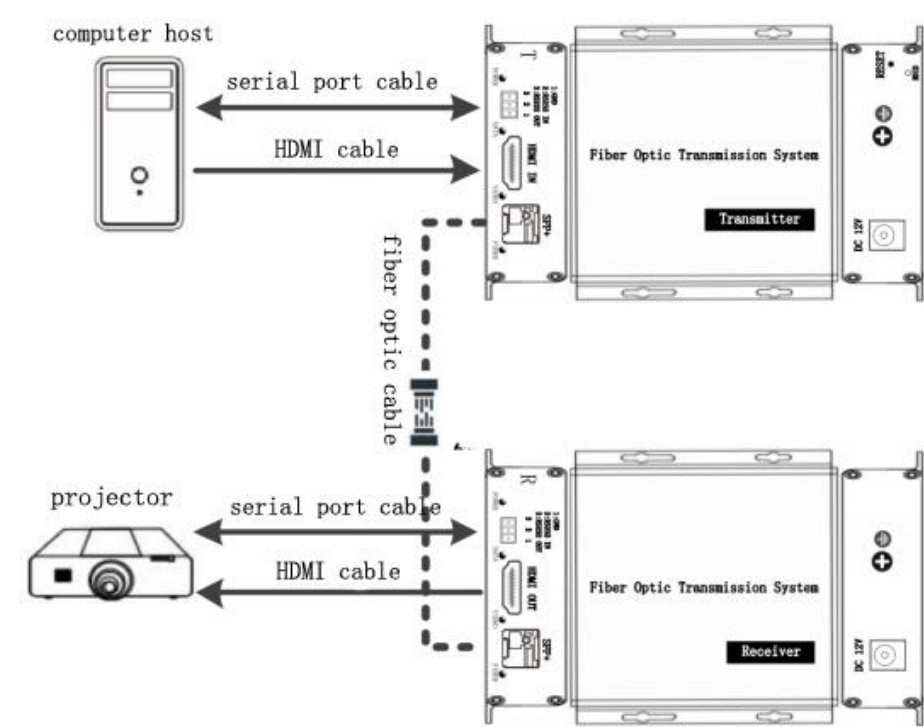
Indicator	
FIBER	Light on : fiber signal Light off : no fiber signal

VIDEO	Light on : video signal Light off : no video signal
DATA	Blinking: data signal Off : no data signal
POWER	On: the device is powered on Off: the device is powered off

Packing List

S.no	Name	Unit	Quantity
1	Transmitter	PCS	1
2	Receiver	PCS	1
3	3-pin phoenix terminal male (fixed to the device)	PCS	2
4	User's manual	PCS	1
5	Warranty card	PCS	1
6	Certificate of quality	PCS	1

Connection Diagram



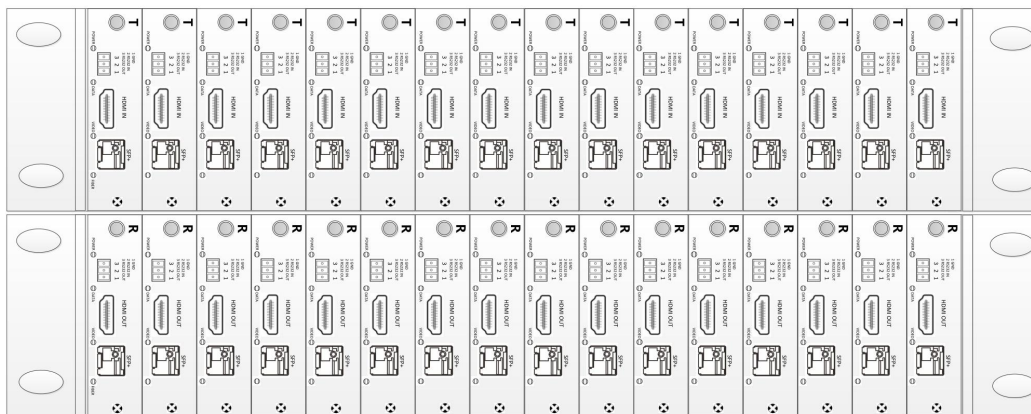
The connection diagram is for reference only

Reminder

It is recommended to use the short optical fiber link for the first time to ensure that all the functions of the equipment are normal,and then do long-distance transmission;

Device default built-in EDID configuration,if there is no image output, EDID automatic learning can be performed;  
 When using the RESET key for EDID mode switching function, it is necessary to keep the normal connection status;  
 1.Press and hold the RESET button on the transmitter for 3 seconds, the EDID lights up;then release the RESET button, the device enters the EDID learning function,then EDID light is off;  
 2.Press and hold the RESET button on the transmitter for 10 seconds, the EDID lights up;then release the RESET button, the device returns to its factory settings,then EDID light is off;

## 2U16 slot chassis parameter



S.no	Product Name	Product Description
1	Product structure	2U rack type
2	Number of slots	16 slots of card type
3	Power supply	Dual power supply, hot backup, with alarm function
4	Power input	AC110~265V, frequency 50/60Hz
5	Power output	DC5V 12A
6	Maximum power	80W
7	Sheet metal thickness	Left and right boards 2.0 thickness, above and below boards 1.0 thickness

## Troubleshooting of indicator

1: Power indicator is abnormal (POWER);

Answer: Check whether the power adapter meets the equipment requirements or the power adapter fails  
 Whether the socket is not tight or loose

2: Fiber indicator is abnormal (FIBER);

Answer: Check whether the optical fiber interface is loose and not plugged in  
 Check whether the optical fiber is too much attenuated

3: Video indicator is abnormal (VIDEO);

Answer: Check the signal source  
 Replace the video cable

4. Data indicator is abnormal (DATA);

Answer: Check the COM port, whether the baud rate is consistent  
 Check whether the serial port cable is connected backwards

## Attention

Lightning protection, static electricity and grounding:

It is recommended that when install the device, consideration should be given to the impact of grounding by lightning, and take prevention measures. Strong static electricity will damage the optical device and data chip in the equipment. It is recommended that when plug/unplug the data port of the optical converter, please disconnect the power supply of the optical converter first.

Fiber and optical components:

Be careful when plugging the optical fiber as optical components of the optical converter is very fragile, and it should avoid causing damage to the optical components. It should be noted that the light source produced by the optical components of the optical converter will be harmful to eyes, so do not have direct eye contact with the optical components of optical converter. If you need to detect the optical power of the optical converter, please use the optical power meter.

Equipment and installation procedures:

- (1) Optical fiber installation: please carefully insert the optical fiber into the optical fiber interface of the optical terminal after confirming that the optical fiber link meets the installation requirements.
- (2) Power amplifier audio signal cannot be directly given to the transmitter, which will lead to the burning machine.
- (3) Equipment installation: The equipment can be distinguished between transmitter and receiver, and it is stated clearly on the label and printed on the chassis of the equipment.