



HEML-0034K3

Rev. 1.0

Optical HDMI Extender

General Description

Optical HDMI extension module, is designed to let digital flat panel display signal extend over 300 meters away from host based on HDMI standard by optical transmission.
It can transmit EDID data and HDCP over fiber in real time. It can be used with HDMI device as well as DVI standard device such as Blu-ray player, PS-4.

Image



Feature

- High speed and long distance transmission by a single **LC type Multimode Fiber**
- TMDS video signals and EDID data are transmitted by optical fiber
- Extends up to **300m by OM3** Multi mode fiber
- HDMI Specification 1.4 Compliant
- Supports **HDCP 2.2** Compliant Device
- Supports resolution up to **4K@60Hz 4:2:0/ 4K@30Hz 4:4:4**
- Compact design comparable with electrical standard HDMI

Absolute Maximum Ratings

Parameter	Rating
Power Supply	-0.3 to 5.5 V
Operating Temperature	0 to 50 °C
Storage Temperature	-20 to 70 °C
Relative Humidity	10 to 80 RH

General Specifications

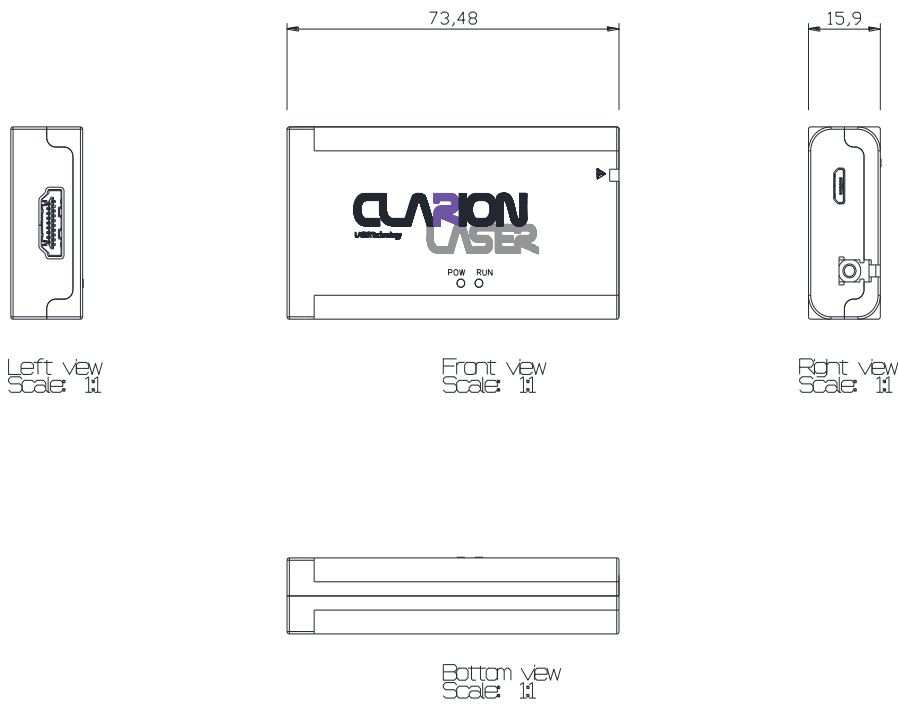
Parameter	Symbol	
	Transmitter	Receiver
Optical Converter	850nm 10G VCSEL/ InGaAs PIN PD	980nm 1G VCSEL/ GaAs PIN PD
Input and Output Signal	TMDS Signal(HDMI 1.4 standard)	TMDS Signal(HDMI 1.4 standard)
Video Bandwidth	3.5Gbps / Channel	
Module Dimension	73.48 x 40.2 x15.9 mm (L x W x H)	
Module Weight	68 g	
Used electrical Connector	HDMI type A Female	HDMI type A Female
Optical Connector	1 LC Connector	1 LC Connector
Recommended Fiber	OM3 Multi-mode glass-fiber	
Maximum Supported Resolution	4K@60Hz(4:2:0) & 4K@30Hz(4:4:4)	



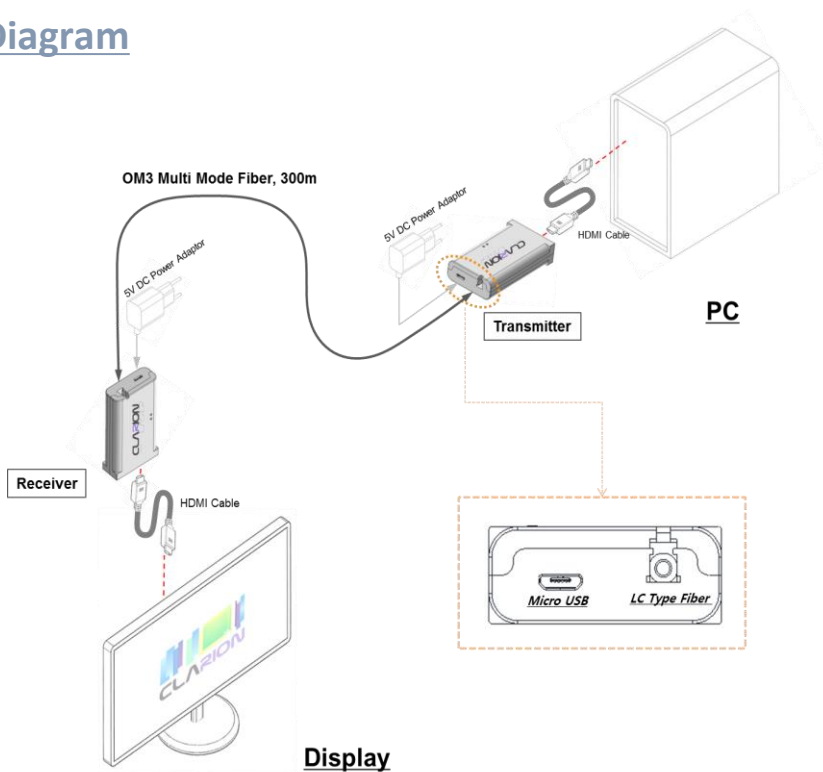
Dimensions/ Install Diagram

Dimensions

Unit :mm



Install Diagram





Electrical Specifications

- Transmitter Module

Parameter		Symbol	Min.	Typ.	Max.	Units	Conditions
P O W E R	Supply Voltage	V _{cc}		5.0		V	External Power
	Supply Current	I _{cc}		500		mA	
	Power Dissipation	P _o		2.0		W	
T M D S	Reference Voltage for Graphic Signal	V _{REF}	3.0	3.3	3.6	V	
	Single-ended high level input voltage	V _H	V _{REF} -0.2		V _{REF} +0.01	V	
	Single-ended low level input voltage	V _L	V _{REF} -0.7		V _{REF} -0.4	V	
	Single-ended input swing voltage	V _{ISWING}	0.4		0.6	V	
	Single-ended standby input voltage		V _{REF} -0.01		V _{REF} +0.01	V	
	Data Output Load	R _{LD}		50.0		Ω	

- Receiver Module

Parameter		Symbol	Min.	Typ.	Max.	Units	Conditions
P O W E R	Supply Voltage	V _{cc}		5.0		V	External Power
	Supply Current	I _{cc}		500		mA	
	Power Dissipation	P _o		2.0		W	
T M D S	Reference Voltage for Graphic Signal	V _{REF}	3.1	3.3	3.5	V	
	Single-ended Output swing voltage	V _{ISWING}	0.4		0.6	V	AC coupled
	Differential Input Clock Frequency	F _{RXC}	25		225	MHz	



PIN Description

No	Pin Assignment	Functional Description
1	TMDS2+	TMDS Data Signal Channel 2 Positive
2	TMDS2 Shield	TMDS Data Signal Channel 2 Shield
3	TMDS2-	TMDS Data Signal Channel 2 Negative
4	TMDS1+	TMDS Data Signal Channel 1 Positive
5	TMDS1 Shield	TMDS Data Signal Channel 1 Shield
6	TMDS1-	TMDS Data Signal Channel 1 Negative
7	TMDS0+	TMDS Data Signal Channel 0 Positive
8	TMDS0 Shield	TMDS Data Signal Channel 0 Shield
9	TMDS0-	TMDS Data Signal Channel 0 Negative
10	TMDS Clock+	TMDS Clock Channel Positive
11	TMDS Clock Shield	TMDS Clock Channel Shield
12	TMDS1Clock-	TMDS Clock Channel Negative
13	CEC	Consumer Electronics Control
14	Reserved Not used	
15	SCL	HDCP/DDC communication clock
16	SDA	HDCP/DDC communication data
17	DDC/CEC Ground	DDC/CEC shield
18	+5V Power	5 V Input for Transmitter for Host, 5 V Output for Monitor from Receiver
19	Hot Plug Detect	Signal is driven by monitor to enable the system to identify the presence of a monitor

Reach

No	Fiber	Reach	Index
1	MMF(OM3)	300m	

Notes

* The inherent design of this component causes it to be sensitive to electrostatic discharge(ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product

* TheFP-LD is a class I laser and should be treated as a potential eye hazard. Due to the size of the component, the applicable warning logotype, aperture label, and certification / identification label cannot be placed on the component itself.