



Specification for

Model : HDMB

Revised : Apr. 09. 2012
Original Release Date : Dec. 30. 2008

OPHIT

Revision History

Version Number	Revision Date	Author	Description of Changes
1.0	Dec. 30. 2008	J.H Lee	Initial Version
1.1	Apr. 27. 2009	J.H Lee	Supply Current Information Added
1.2	June 24, 2010	J.H Lee	Fiber Cable Characteristics Modified
1.3	Feb. 02. 2012	J.H Lee	Case Dimension(stopper change) Modified
1.4	Apr. 09. 2012	J.H Lee	Ordering Information Removed

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1. General Description

HDMB, unique fiber optical HDMI extension system, lets your digital HDTV or Projector signal extend and go up to 120 meter(390ft) away from host based on HDMI standard without signal degradation by 1080p resolution.

- High Speed and long distance transmission by optical system
- Compatible with HDMI standard 1.3
- Either external or internal power supply is possible
- External power supply for Transmitter is optional. Automatic power switch is included.
- DDC and CEC signal and 5V power line are transmitted by copper line
- HDCP compliant

2. General Specification

Parameter	Symbol	
	Transmitter	Receiver
Optical Converter	4 ch 850 nm Multi-mode VCSEL	4 ch GaAs PIN photo Diode
Input and Output Signal	TMDS Signal(HDMI 1.3 standard)	TMDS Signal(HDMI 1.3 standard)
Video Bandwidth	12bit Deep color / 60Hz	
Module Size	74W x 24D x 19Hmm	54W x 24D x 19Hmm
Electrical Connector	19 PIN HDMI Plug(input)	19 PIN HDMI Plug(output)
Applied Fiber	50/125 μ m Multi-mode glass-fiber	

3. Absolute Maximum Ratings

Parameter	Rating
Storage temperature	-20°C ~ +70°C
Operating temperature	0°C ~ +50°C
Power Supply	-0.3 ~ 5.5 V
Relative Humidity	10 ~ 80 %
Lead-free solder temperature	260°C, 10 seconds

NOTICE

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions above those indicated in the operations section for extended periods of time may affect reliability.

4. Electrical & Optical Specification

4.1 Electrical Specification

4.1.1 Transmitter Module

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage	Vcc		+5.0		V	
	Supply Current	Icc		160		mA	
	Power Dissipation	Po		0.8		W	
T M D S	Reference voltage for graphic signal	Vref	+3.1	+3.3	+3.5	V	
	Single-ended high level input voltage	VH	Vref-0.01		Vref+0.01	V	
	Single-ended low level input voltage	VL	Vref-0.6		Vref-0.4	V	
	Single-ended input swing voltage	Vswing	0.4		0.6	V	
	Single-ended standby input voltage		Vref-0.01		Vref+0.01	V	
	Data Output Load	RLD		50		Ohms	

Transmitter module of Model HDMB includes 4 channel VCSEL (Vertical Surface Emitting Laser Diode) with 850 nm invisible laser radiation.

Transmitter module of HDMB is Class 1 Laser Product.

4.1.2 Receiver Module

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage	Vcc		+5.0		V	
	Supply Current	Icc		210		mA	
	Power Dissipation	Po		1.05		W	
T M D S	Reference voltage for graphic signal	Vref	+3.1	+3.3	+3.5	V	
	Single-ended output swing voltage	Voswing	0.4		0.6	V	AC couple
	Data Input Load	RLD		50		Ohms	

4.2 Connector Pin Assignment

Transmitter

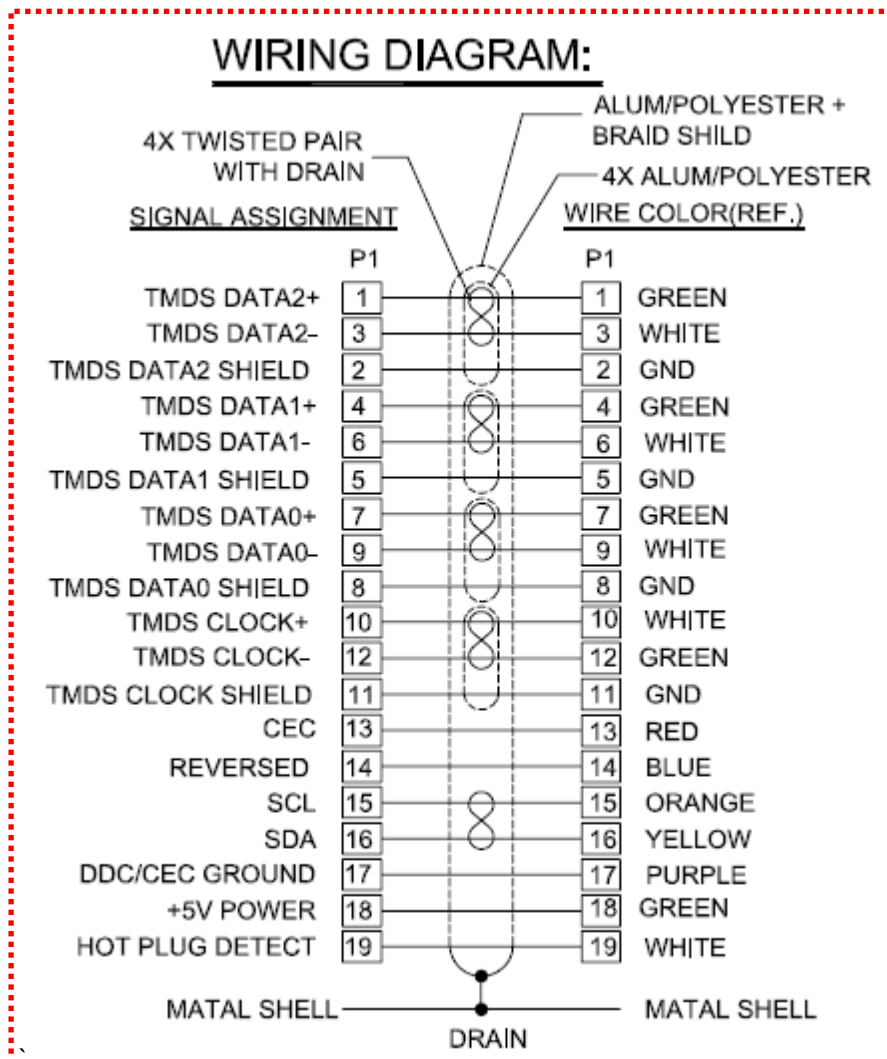
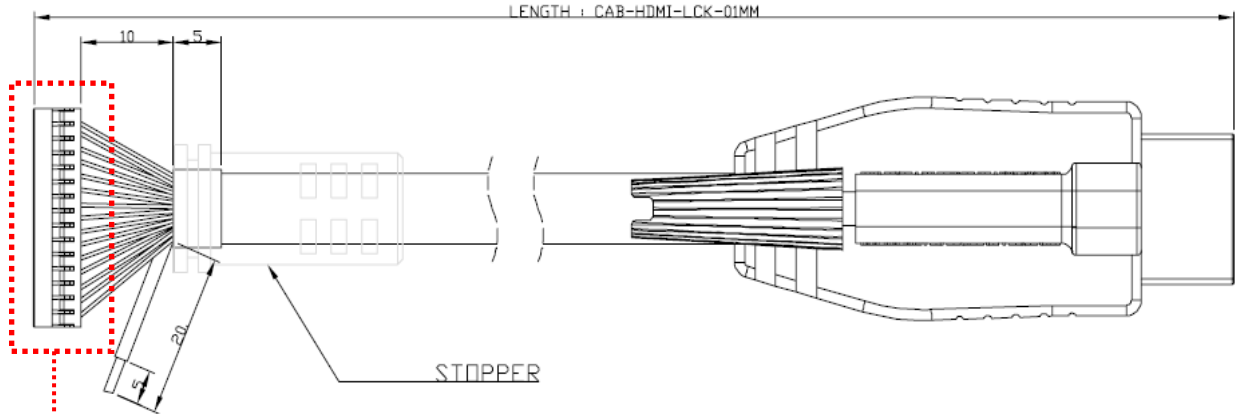
Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2+	2	T.M.D.S. Data 2 Shield
3	T.M.D.S. Data 2-	4	T.M.D.S. Data 1+
5	T.M.D.S. Data 1 Shield	6	T.M.D.S. Data 1-
7	T.M.D.S. Data 0+	8	T.M.D.S. Data 0 Shield
9	T.M.D.S. Data 0-	10	T.M.D.S. Clock+
11	T.M.D.S. Clock Shield	12	T.M.D.S. Clock-
13	CEC	14	Reserved (N. C on device)
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5V Power
19	Hot Plug Detect		

Receiver

Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data 2+	2	T.M.D.S. Data 2 Shield
3	T.M.D.S. Data 2-	4	T.M.D.S. Data 1+
5	T.M.D.S. Data 1 Shield	6	T.M.D.S. Data 1-
7	T.M.D.S. Data 0+	8	T.M.D.S. Data 0 Shield
9	T.M.D.S. Data 0-	10	T.M.D.S. Clock+
11	T.M.D.S. Clock Shield	12	T.M.D.S. Clock-
13	CEC	14	Reserved (N. C on device)
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5V Power
19	Hot Plug Detect		

5.2 Cable Information

5.2.1 Electric Cable



5.2.2 Optical Cable

The construction of 4 optical fibers and 4 copper wires cable shall be in accordance with Figure 1 and Table 1.

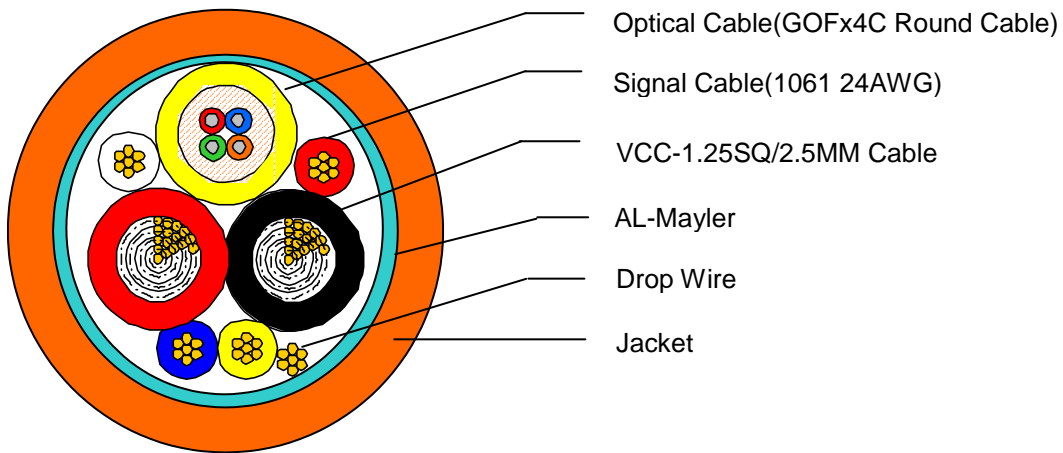


Figure 1. Cable structure of HDMB

Table 1. Specification of electrical wire for HDM cable

The Dimension of HDMB Cable		
Items	Unit	Specification
DVI Cable Make-up	-	Layer Stranding
Drain Wires (Size/Stranded)	mm(AWG)	-0.203/7 (24)
AL-Mylar Screen Shield	-	A helically
Cable Outer Diameter	mm	7.40±0.20
Jacket Color	-	FR-PVC(Orange)
Cable Marking	-	If need

The construction of 4 optical fibers and 4 copper wires cable shall be in accordance with Figure 2 and Table 2 and 3.

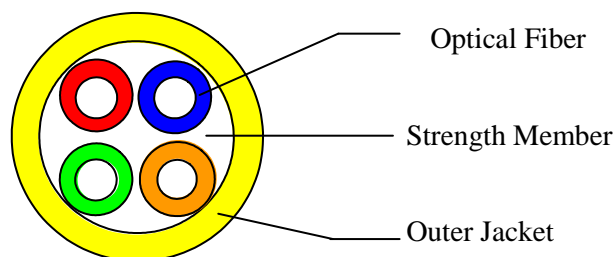


Figure 2. Cable structure of GOFx4C Round Cable

Table 2. Fiber Cable Construction

Item		Description
Optical Fiber	Number	4
	Structure	Figure 1
Strength Member		Aramid Yarn
Outer Jacket	Material	FR-PVC(Yellow)
	Approx.Thickness	1.6mm
Nominal Outside Diameter		$\phi 4.0 \pm 0.4 \text{mm}$
Approximate Net Weight		10kg/km
Cable Identification		OPTICAL HDMI CABLE

Table 3. Fiber Cable Characteristics

Item	spec.	unit	Condition
Storage Temperature	-40 ~ 70	°C	Spooled
Operational Test	-20 ~ 70	°C	-
Max. Tensile Load	245	N	By careless handling(short term)
Min. Radius Bend	75	mm	By careless handling(short term)
	125		After installing(long term)
Crush Resistance	490	N/50mm	By careless handling(short term)

6. RoHS

Certificate of Conformance RoHS

Dear Customer,

On January 27, 2003, the European Parliament and the Administrative Council adopted Directive 2002/95/EC (RoHS) that concerns the "Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment".

The parts currently delivered by **OPHIT CO., LTD.** are already free of lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr⁶⁺), polybrominated biphenyl (PBB) and polybrominated diphenyl (PBDE).

This Certification of Conformance is to certify that the products listed below comply with RoHS Directive mentioned above:

- HDMB

If you have any further questions regarding the RoHS compliance of parts delivered by **OPHIT CO., LTD.**, please do not hesitate to contact us at support@ophit.com.

Best regards,

JONG-KOOK MOON/CEO

OPHIT CO., LTD.