

Preliminary Specification

Product Specification

Model : DLC4

M2L Co., Ltd.

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1. General Description

Generally speaking, when PC and multi-media players are separated in a remote area with DID monitors or Video Wall Displays with DVI input, it deteriorate signal through normal DVI cables, resulting in no display symptom or noise on the display. DLC4 is suitable and reliable solution to solve this kind of signal loss and guarantee 100% transmission of original signal through fiber optic.

- DVI Interface(Plug Type)

- 4 Core Multi Mode Fiber

- Up to 1920 X 1080@60Hz

- Emulated EDID

- Maximum Reach:

 - DVI: 500m

- Application

 - Interactive White Board System

 - Conference System

 - Video Wall System

 - DID(PID), LCD, PDP and conference room projectors.

 - Medical, Broadcasting, Military, Factory Automation and Traffic control system.

 - CCTV System

2. Technical Specification

Category		Detail spec
Electrical	Electrical Connector	DVI Plug Type
	Video band-width	1.65Gbps
	Maximum Reach	DVI : 500m
	Graphic Resolution Support	1920x1080@60Hz
	External Power Connector	1.3mm DC JACK
Optical	Optical Connector	LC Connector
	Recommended Fiber	62.5/125um Multi Mode Fiber
	TX Module	850nm VCSEL x 4
	RX Module	850 InGaAs/InP PIN type photo diode x 4

2.1 Electrical Specification

2.1.1 Transmitter Module

PARAMETER	Min	Typ	Max	Unit
Supply Voltage	4.5	5	5.5	V
Supply Current	-	340	360	mA
Power consumption	-	1.7	1.8	W
TMDS Input Differential Voltage Level	150		1200	mV
TMDS Input Common Mode Voltage	2.9		3.26	V
TMDS Min Differential Sensitivity (Peak-to-Peak)	150			mV
TMDS Max Differential Input (Peak-to-Peak)	1560			mV
TMDS Max Allowable Intra-Pair Skew at Connector	0.15Tbit+112ps			
TMDS Max Allowable Inter-Pair Skew at Connector	0.2 Tcharacter+1.78ns			
TDR Rise Time			200	ps

2.1.2 Receiver Module

PARAMETER	Min	Typ	Max	Unit
Supply Voltage	4.5	5	5.5	V
Supply Current	-	220	240	mA
Power consumption	-	1.1	1.2	W
TMDS Single-ended output swing voltage	400		600	mV
TMDS Single-ended high level output voltage	3.3V-200mV		3.3V+10mV	
TMDS Min Single-ended low level output voltage	3.3V-700mV		3.3V-400mV	
TMDS Rise time/ fall time (20%-80%)			75	PS
TMDS Intra-Pair Skew at Source Connector			0.15Tbit	
TMDS Inter-Pair Skew at Source Connector			0.2 T _{character}	
TDR Clock duty cycle	40%	50%	60%	
TMDS Differential Clock Jitter			0.25Tbit	

2.1.3 DVI Receptacle Pin Assignment

The DVI ports are in compliance with the latest DVI standard 1.0.



DVI Connector Pin Assignment

Pin No.	Signal Name	Pin No.	Signal Name
1	TMDS DATA 2-	15	DDC/CEC/HEC Ground
2	TMDS DATA 2+	16	Hot Plug detect (all versions)
3	TMDS DATA Shield	17	TMDS DATA 0-
6	SCL (I ² C Serial Clock for DDC)	18	TMDS DATA 0+
7	SDA (I ² C Serial Data Line for DDC)	19	TMDS DATA Shield
8	Analog vertical sync	22	TMDS Clock Shield
9	TMDS DATA 1-	23	TMDS Clock +
10	TMDS DATA 1+	24	TMDS Clock -
11	TMDS DATA Shield		
14	+5 V (max 50 mA)		

2.2 Optical Specification

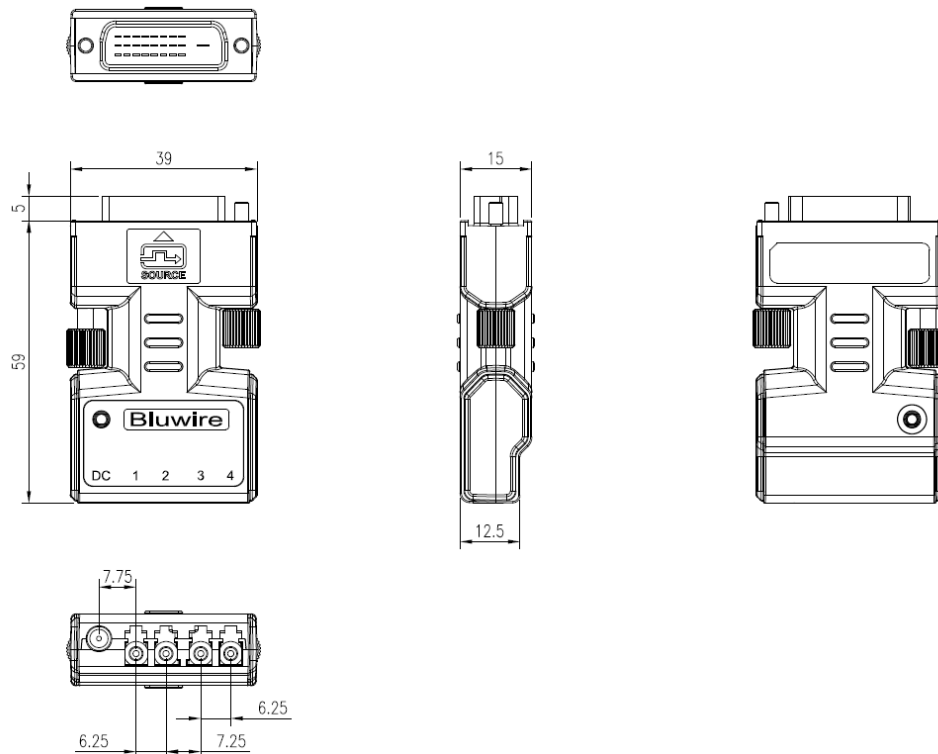
2.2.1 Transmitter Module

PARAMETER	Min	Typ	Max	Unit
Output Power1	-4		0	dBm
Output Power2	-4		0	dBm
Output Power3	-4		0	dBm
Output Power4	-4		0	dBm

2.2.2 Receiver Module

PARAMETER	Min	Typ	Max	Unit
Sensitivity1			-20	dBm
Sensitivity2			-20	dBm
Sensitivity3			-20	dBm
Sensitivity4			-20	dBm

3. Mechanical Specifications



4. Environmental

Items	Status
Operating Temperature	32°F ~ 122°F (0°C ~ 50°C)
Operating Humidity	10% ~ 80%, non-condensing
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5% ~ 95%, non-condensing
Dimension set (WxDxH)	39mm x 64mm x 15mm
Weight w/o Packaging	60g
Weight	320g

5. Accessories list

Item	Quantity	Item	Quantity
5V AC-DC Adaptor	2	User Manual	1

6. Safety and Regulatory Approvals

Countries	EMC	Status
Europe	CE Class A	OK
America	FCC Class A	OK
Korea	KC Class A	OK
EU	RoHS compliance	-

Laser Safety Information

<US FDA CDRH Class 1>

Ensure to avoid exposure of human eyes to high power laser diode emitted laser beams.

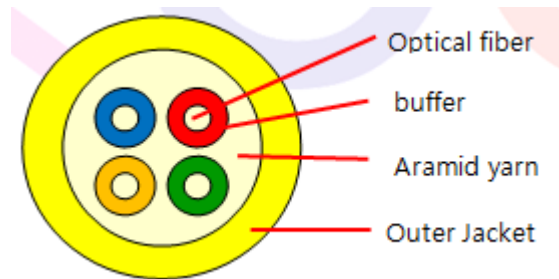
Especially do not look into the laser diode or the collimated laser beam

when the diode is activated.

US FDA CDRH Class 1, IEC60950, 60825-1.

7. Cable Structure

7.1 Cross Section



7.2 Construction

Structure	Material	SPECCIFICATIONS	
Optical fiber	Fiber	- MMF : 62.5(OM1)	
Tight Buffer	Material	- PVC, FR-PE(LSZH), Hytrel, Nylon	
	Diameter	- 0.90 ± 0.05mm	
Outer jacket	Strength member	- Aramid yarn	
	jacket	Material	- PVC or FR-PE(LSZH)
		Diameter	- $\Phi 4.7 : \pm 0.30\text{mm}$
Marking	Ink Jet	- Black , 1m,	

7.3 Cable diameter & Tensile strength

Fiber Count	Outer Diameter	Weight	Max. Pulling Strength	Remark
	mm	Kg/km	N	
1F	4.7 ± 0.3	23	600	

8. Cable Property

8.1 Mechanical & Environmental properties

8.1.1 Cable bending radius: 10 x cable diameter (during operation)

15 x cable diameter (during installation)

8.1.2 Operating temperature range : -4°F ~ 158°F (-20°C to +70°C)

Installation temperature range : 14°F ~ 140°F (-10°C to +60°C)