



**DSK**

Optical DVI Extension system

Customer :

# **Specification for**

## **Model : DSK**

Revised : Jan. 07. 2011  
Original Release Date : Jan. 07. 2011

# **OPHIT**



## Revision History

<b>Version Number</b>	<b>Revision Date</b>	<b>Author</b>	<b>Description of Changes</b>
1.0	Jan 07, 2011	J.H Lee	Initial Version



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## 1. General Description

**DSK**, optical DVI extension module, is designed to let digital flat panel display extend over 1000 meters away from host based on DVI standard by optical transmission technology.

Its small package and pseudo DDC detect function and Self-EDID detect function to use standard SC fiber connector allow users to install and utilize the device conveniently.

- Long distance transmission of digital graphic signal corresponding to T.M.D.S  
-over 1000 meter(3,300ft) by multi-mode one fiber.
- R, G, B, Clock signal is transmitted separately by one multi-mode optical fiber.
- Pseudo-DDC detection function for EDID information  
Self detecting function for EDID information  
Maximum resolution WUXGA
- Optional external power supply for Transmitter(Automatic power switch is included.)

## 2. General Specification

Parameter	Symbol	
	Transmitter	Receiver
Optical Converter	850nm, 4ch Transmit OSA	850nm, 4Ch Receive OSA
Input and Output Signal	TMDS Signal (DVI 1.0 standard)	TMDS Signal (DVI 1.0 standard)
Video Bandwidth	1.65Gbps / Channel	
Module Dimension	39 x 14 x 61.4 mm (W x H x D)	
Module Weight	--	--
Using electrical Connector	24 PIN DVI-D Plug (input)	24 PIN DVI-D Plug (output)
Optical Connector	1 SC Connector	1 SC Connector
Recommended Fiber	50/125um Multi-mode glass-fiber	
Maximum Supporting Resolution	WUXGA(1920x1200) / 60Hz	

### 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 solder temperature	260°C, 10 seconds

**NOTICE**

Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating 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 Specification

### 4.1 Electrical Specification

#### 4.1.1 Transmitter Characteristics

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage (Option External Power)	Vcc	+4.5	+5.0	+5.5	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 DSK includes 4 channel VCSEL(Vertical Surface Emitting Laser Diode) with 850 nm invisible laser radiation.

*Do not view directly laser module of transmitter or the end of the other side of optical cable connected to transmitter with optical instrument.*

Transmitter module of DSK is Class 1M Laser Product.

#### 4.1.2 Receiver Module

	Parameter	Symbol	Min	Typ	Max	Units	Condition
P O W E R	Supply Voltage (External Power)	Vcc	+4.5	+5.0	+5.5	V	
	Supply Current	Icc		125		mA	
	Power Dissipation	Po		0.63		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

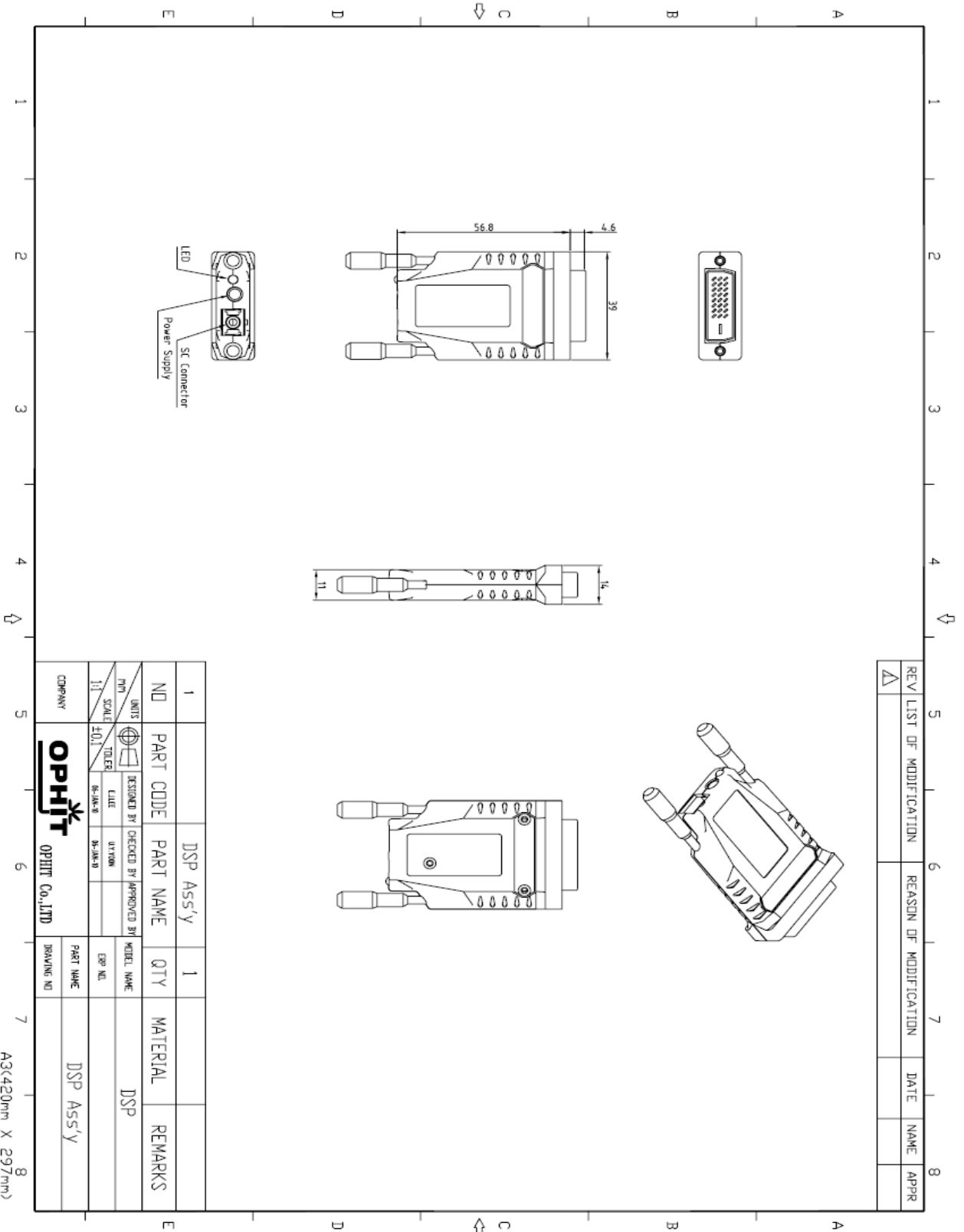
Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2 Shield	11	T.M.D.S. Data1 Shield	19	T.M.D.S. Data0 Shield
4	No Connect	12	No Connect	20	No Connect
5	No Connect	13	No Connect	21	No Connect
6	DDC Clock (Only TX)	14	+5V Power	22	T.M.D.S Clock Shield
7	DDC Data (Only TX)	15	Ground (for +5V)	23	T.M.D.S Clock+
8	No Connect	16	No Connect	24	T.M.D.S Clock-

### Receiver

Pin	Signal Assignment	Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2 Shield	11	T.M.D.S. Data1 Shield	19	T.M.D.S. Data0 Shield
4	No Connect	12	No Connect	20	No Connect
5	No Connect	13	No Connect	21	No Connect
6	No Connect	14	Out +5V Power	22	T.M.D.S Clock Shield
7	No Connect	15	Ground (for Out +5V)	23	T.M.D.S Clock+
8	No Connect	16	No Connect	24	T.M.D.S Clock-

### 5. Mechanical Specification

#### 5.1 Case Dimension



REV	LIST OF MODIFICATION	REASON OF MODIFICATION	DATE	NAME	APPR
Δ					

NO	PART CODE	PART NAME	QTY	MATERIAL	REMARKS
1		DSP Assy	1		DSP

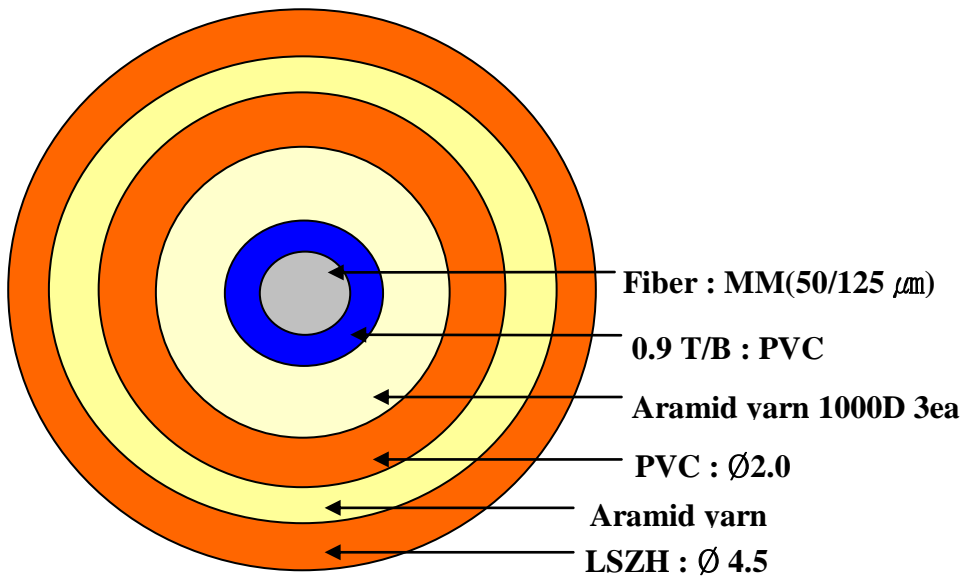
COMPANY	OPHIT OPHIT Co.,LTD	PART NAME	DSP Assy
DESIGNED BY	UTAWA	CHKD BY	UTAWA
CHECKED BY	UTAWA	DATE	06-10-09
SCALE	1:1	TOLERANCE	±0.1
UNITS	MM	FILE	06-10-09
DATE	06-10-09	BRWING NO	

A3(420mm X 297mm)



5.2 SC Connector and ordering information

▪ Outdoor Type Cable



▪ Ordering Information

**DSK - AXXX - X**

- Model Name
  - A: Full set including of Tx, Rx, Adapter and Cable for Outdoor type (4.5mm jacket)
  - M : Tx, Rx and IPower Adapter
- Type
- SC Fiber Length
  - 050 = 50 meters
  - 100 = 100 meters
  - 300 = 300 meters
  - 500 = 500 meters
- pseudo-DDC function
  - Maximum Resolution for DDC check
  - O : No DDC check
  - U : UXGA
  - S : SXGA
  - X : XGA
  - G : SVGA
  - A : VGA

• Cable length is upon customer request by every 10 meters

## 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 (Cr 6), polybrominated biphenyl (PBB) and poly brominated diphenyl (PBDE).

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

- DSK

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](mailto:support@ophit.com).

Best regards,

JONG-KOOK MOON/CEO

OPHIT CO., LTD.