

Single Fiber Detachable DVI Modules

DVI-ME-TR-1 Series

Enhanced
Video
Solutions

Description

The Digital Visual Interface is a high-quality, uncompressed data link between a host processor video card and a display peripheral. Optical technology for this transmission stretches the performance beyond the limitations of copper wire with longer length, data security, negligible RFI/EMI and the elimination of costly analog distribution systems.

The EDID in the display can be read and stored by just plugging TX unit to the display. This self-EDID programming feature makes the installation of the TX unit easy and flexible for any variable resolution display systems. The transmitter and receiver are connected over single SC terminated fiber jumpers.

The four (4) optical data, Red, Green, Blue and clock are multiplexed and de-multiplexed within optical modules. The transmitter optical signal is capable, by using an optional optical passive splitter, of supporting up to 16 receivers.

An external power adapter is required for the receiver module, while most video cards can provide +5V DC power to the transmitter module. The transmitter module provides automatic power management between the DC power supply and the graphics card.

Applications

- Digital FPD, PDP and projector installation in conference rooms, auditoriums and for kiosk systems.
- Digital display system integration for medical, military, aerospace, factory automation, and traffic control platforms.
- LED signboards for large scale information display and stadiums.



Key Features

- Extends all DVI-D Single Link VESA resolutions up to WUXGA (1,920 x 1,200) 60Hz data
 - (1) Up to 1,000m (3,280 feet) with simplex SC single-mode fibers.
 - (2) Up to 500m (1640 feet) with simplex SC multi-mode fibers.
- Resolutions Supported (Based on DVI input)

HDTV: 480p, 576p, 720p, 1080p
VESA: VGA, SVGA, XGA, WXGA, SXGA, SXGA+, WXGA+, UXGA, WSXGA+, WUXGA
- Offers self-EDID programming feature, detecting from a display and storing to an EEPROM in the transmitter just by plugging to the display without any physical DDC connection.
- Compact modules plug directly to graphic source and display DVI connectors.
- Provides Power, Signal Transmission and Signal Detect Indicators.
- Includes two +5V DC (100-240 VAC) power adapters for the transmitter and receiver.
- Certifications: IEC60601-1-2, FCC/CE, Class 1 LASER Eye Safety

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Electrical/Optical Characteristics

Transmitter Specifications						
	Parameter	Symbol	Minimum	Typical	Maximum	Units
Power Supply	Supply Voltage	V _{CC}	4.5	5.0	5.5	V
	Supply Current	I _{TCC}	650	680	710	mA
	Power Dissipation	P _{TX}	2.925	3.400	3.905	W
	Power Supply Rejection	PSR		50		mV _{p-p}
TMDS	Data Output Load	R _{LD}		50		Ω
	Graphic Supply Voltage	GV _{CC}	+ 3.1	+ 3.3	+ 3.5	V
	Single-Ended Input Swing Voltage	GV _{ISWING}	0.4	-	0.6	V
Optical Link	Output Optical Power	P _o	-6.0		0	dBm
	Wavelength	λ	1260	1310	1360	nm
			1480	1550	1600	
	Extinction Ratio	Ext	4			dB
	Rising/Falling Time	T _{rise} /T _{fall}			260	ps
	Jitter in p-p value (Note5)	T _{jitter}			260	ps

Receiver Specifications						
	Parameter	Symbol	Minimum	Typical	Maximum	Units
Power Supply	Supply Voltage	V _{CC}	4.5	5.0	5.5	V
	Supply Current	I _{RCC}	530	560	590	mA
	Power Dissipation	P _{RX}	2.385	2.8	3.245	W
	Power Supply Rejection	PSR		50		mV _{p-p}
TMDS	Data Input Load	R _{LD}		50		Ω
	Graphic Supply Voltage	GV _{CC}	+ 3.1	+ 3.3	+ 3.5	V
	Single-Ended Output Swing Voltage	GV _{ISWING}	0.2	-	0.4	V
Optical Link	Receiving Optical Power	P _o	-21		0	dBm
	Receiving Wavelength	λ	1260	1310	1360	nm
			1480	1550	1600	
	Signal_Detect Good	SDg			-31	dBm
	Signal_Detect Fail	SDf	-21			dBm
	Link Power Budget	P _{bgt}	13.9			dB
	Total Jitter	TR _{jitter}			309	ps

Recommended Operating Conditions

Parameter	Symbol	Minimum	Maximum	Units
Operating Temperature	T _{op}	-0	+ 50	°C
Storage Temperature	T _s	- 30	+ 70	°C
Storage Relative Humidity	H _s	10	95	%RH

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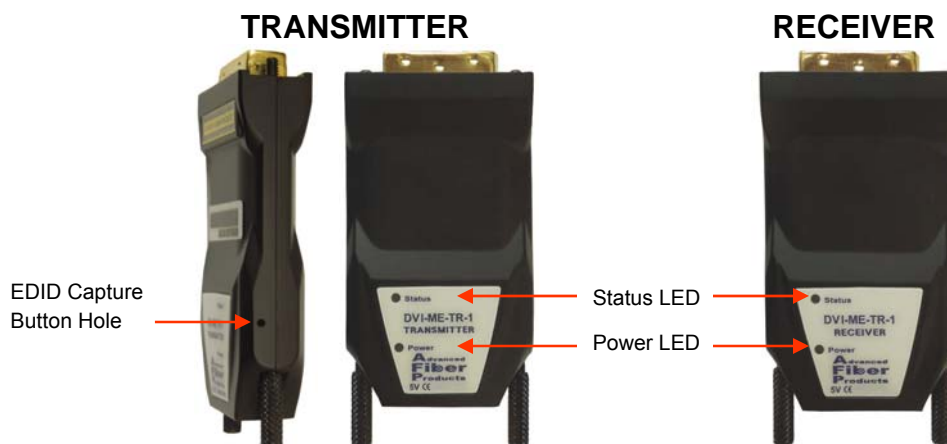
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TRANSMITTER LED'S AND CONDITIONS

TX POWER LED	CONDITION
Green LED On	Power is on. (The majority of graphic cards can supply 5V power, so the TX could be turned on without the external Power Supply.)
Green LED Off	Power is off.

TX STATUS LED	CONDITION
Green LED On	Electronic DVI is being input into the TX. TX is in progress of converting DVI to optical. Laser is actively transmitting optical signal.
Green LED Blinking	Bad (or abnormal) DVI signal is being input into TX, or No DVI signal is being input.
Green Blinking 3 times	Ready to capture EDID
Green Blinking fast	Emulating EDID in the EEPROM
Green LED Off	The power to the TX unit is off.

NOTE: Simple EDID capture process is used for a new display. Power the TX. Push EDID capture button with small diameter pin. Plug powered TX into powered display. Status LED blinks quickly while storing the EDID. After about 8 seconds it will blink slowly. Procedure is complete. EDID is stored into memory. Disconnect TX from display.

RECEIVER LED'S AND CONDITIONS

RX POWER LED	CONDITION
Green LED On	Power is on.
Green LED Off	Power is off.

RX STATUS LED	CONDITION
Green LED On	Optical DVI is being input into the RX. RX is in progress of converting optical to electronic DVI signal. Optical fiber is well plugged into the module.
Green LED Blinking	No optical DVI signal is coming from the TX, or the optical fiber is disconnected.
Green LED Off	The power to the unit is off.

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Technical Features

Resolution	WUXGA @60Hz
PER (500m)	< 10 at UXGA@60Hz
Bit rate	1.65Gbps / Ch
Self-EDID	Yes
Auto-power switching	Yes
Indicators	Power (Both), LD (Tx), SD (Rx)

Optical Features

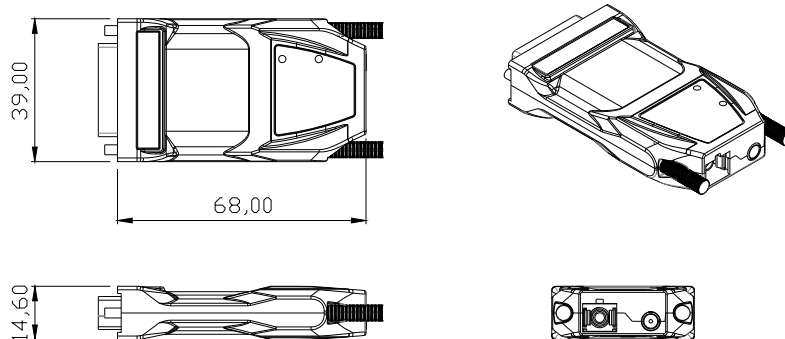
Fiber Type	Single-mode, Multi-mode
Number of Fiber	1
Output Connector	SC
Distance	1,000m over Single-mode fiber, 500m over Multi-mode fiber
Splitting	Up to 16-channel using optional passive optical splitter

Physical Features


Dimension	39 x 14.6 x 68 (mm) (W x H x D)
Power Level	100 - 240VAC, 50 - 60Hz 5VDC @2A
Operating Temperature	0 to +50°C
Humidity	0 to 95% RH, non-condensing

Drawings

(Unit : mm)



Note: The DVI-ME-T-1 transmitter and DVI-ME-R-1 receiver have the same mechanical dimensions.

Part Numbers	Shipping Dimensions	Shipping Weight
DVI Kits: TX, RX and 2 Power Supplies		
DVI-ME-TR-1-D (with US Power Supplies)	10 x 8 x 6 inch 25.4 x 20.3 x 15.2 cm	1.8 lb
DVI-ME-TR-1-E (with European Power Supplies)		817 g
DVI-ME-TR-1-U (with UK Power Supplies)		
 Replacement Power Supplies		
PS-5V-2A-DVI-D (100-240VAC, 50/60 Hz, 5V, 2A US Plugs)	13.25 x 11.5 x 2.5 inch	0.9 lb
PS-5V-2A-DVI-E (100-240VAC, 50/60 Hz, 5V, 2A Euro Plugs)	5.2 x 4.5 x 1 cm	408 g
PS-5V-2A-DVI-U (100-240VAC, 50/60 Hz, 5V, 2A UK Plugs)		

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Advanced Fiber Products, LLC develops and manufactures active optical devices engineered and packaged to withstand the rigors of broadcast production and many industrial environments. AFP also offers a wide range of ancillary components in addition to specialized fiber assemblies related to high performance optical hermeticity, laser-to-fiber or fiber-to-detector delivery and integration into complete packaging solutions. AFP LLC is a wholly owned subsidiary of Advanced Fiber Products Ltd. headquartered near Cambridge in the UK.

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