

Kestrel Series

DVI Fiber Optic Media Converters,
D38999 28VDC, Multimode, 850nm,
Quadrax

DVI Fiber Transmitters / Receivers

FEATURES

- Optical fiber link distances up to 500 meters
- Operating temperature range from -40°C to +85°C
- Shock, vibration and immersion resistant per MIL-STD-810 and MIL-STD-1344
- OD-CD material finish meets stringent corrosion performance specifications
- Aluminum alloy enclosure and MIL-DTL-38999 shells are strong, durable, corrosion resistant and light weight
- EN4531/3645 compliant optical fiber connector interface
- D38999 / Quadrax electrical interface provides robust interconnection to platform wiring

APPLICATIONS

Kestrel series wall or floor mounted DVI fiber optic media converters enable high speed video transmission over long distances in harsh environments.

- DVI link extension
- Remote display clusters
- Alternative display configurations

The MIL-DTL-38999, Series III shells provide a sealed optical interface that is water-tight to MIL-STD-810 / IP67 / NEMA-4x when mated.

The multimode optical fiber interface supports applications where copper cable link distance, bandwidth, weight or bulk make the use of twisted pair, twinax or quadrax copper conductors unacceptable.



D38999 to Quadrax / Optical to Electrical Media Converter

DESCRIPTION

Kestrel series DVI fiber optic media converters consist of optoelectronic conversion functions integrated into a wall or floor mounted MIL-DTL-38999 connector assembly. The optical transmitters are high output 850nm VCSEL's. The optical receivers consist of GaAs PIN and preamplifier assemblies and limiting postamplifiers.

The electrical connector interface to the Kestrel series DVI fiber optic media converters is a D38999/19-18 Quadrax connector enabling interconnection to a standard DVI connector interface with a Quadrax cable adaptor.

Kestrel series DVI fiber optic media converters are vibration isolated, environmentally hardened components designed for use in harsh environment applications.

- Sealed against liquid and solid contaminants
- Shock and vibration resistant

ORDERING INFORMATION

Application	Item Number
DVI Fiber Transmitter , 28VDC	E44F-4TAV-FW
DVI Fiber Receiver , 28VDC	E44F-4RAV-FW

See Appendix A2 for more part number options

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ABSOLUTE MAXIMUM RATINGS

Absolute maximum limits mean that no catastrophic damage will occur if the product is subjected to these ratings for short periods, provided each limiting parameter is in isolation and all other parameters have values within the performance specification. It should not be assumed that limiting values of more than one parameter can be applied to the product at the same time.

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Storage Temperature	T_s	-55		+100	°C
Supply Voltage	V_{cc}	-0.5		45.0	V

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Temperature	T_A	-40		+85	°C
Supply Voltage	V_{cc}	+18.0	+28.0	+36.0	VDC
Power Supply Noise (p-p)	N_p			200	mV

SPECIFICATIONS COMPLIANCE

Requirement	Feature	Condition	Notes
MIL-STD-883	ESD	Class II	2200V
MIL-STD-810	Vibration	3.8g ² /Hz	43G rms
MIL-STD-810	Shock	40.0g	6-9mS
MIL-STD-1344	Flame Resistance	Method 1012	30 Seconds
MIL-STD-1344	Damp Heat	10 Cycles	24 Hours
MIL-STD-38999	Mating Durability	500 Cycles	<0.5dB Change
FDA / CDRH / IEC-825-1	Eye Safety	Class 1	No Safety Interlocks Required

MATERIALS

Item	Detail	Notes
D38999 Cylindrical Shells	Aluminum Alloy	
Material Finish	OD-CD, NI or ZN-NI	
D38999 Inserts	Thermoplastic	
Interfacial Seals	Elastomer	
Housing	Aluminum Alloy	

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OPTICAL TRANSMITTERS $T_A = \text{Operating Temperature Range, } V_{CC} = 18.0V \text{ to } 36.0V$

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Output Power (BER<10 ⁻¹²)	P_o	-6.5		-1.0	dBm
Optical Output Wavelength	λ_{OUT}	830	850	860	nM
Spectral Width	$\Delta\lambda_{RMS}$			0.85	nM
Extinction Ratio	ER	9.0			dB
Optical Rise, Fall Time (20% to 80%)	$t_{R,F}$			80	pS

OPTICAL RECEIVERS $T_A = \text{Operating Temperature Range, } V_{CC} = 18.0V \text{ to } 36.0V$

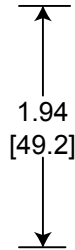
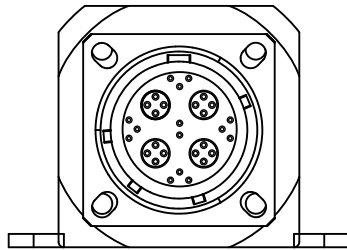
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Optical Sensitivity (BER<10 ⁻¹² , ER=9.0)	P_i	-19.0		0.0	dBm
Optical Wavelength	λ_{IN}	830		860	nM

POWER SUPPLY CURRENT $T_A = \text{Operating Temperature Range, } V_{CC} = 18.0V \text{ to } 36.0V$

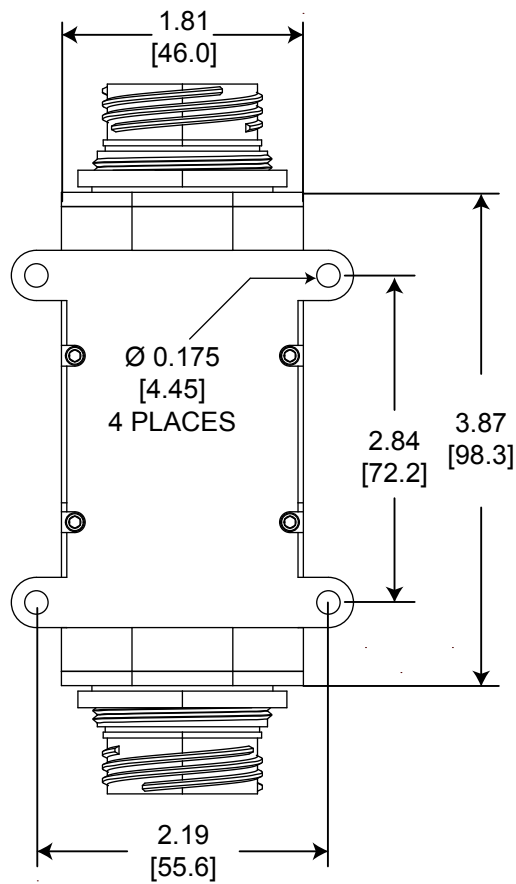
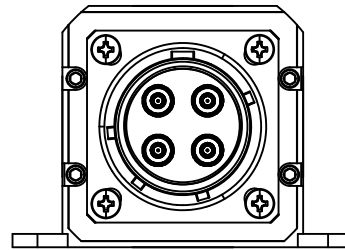
Parameter	Symbol	Minimum	Typical	Maximum	Unit
Supply Current	I_{CCT}		200	250	mA

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OUTLINE DRAWING
 Dimensions are shown as: inches (mm)

J1
 D38999/20WF18PN



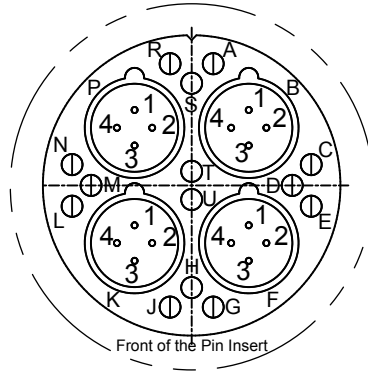
J2
 D38999/20WF84PN Equiv.



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J1 Pin Functions

Electrical Data Connector Wiring Schematic



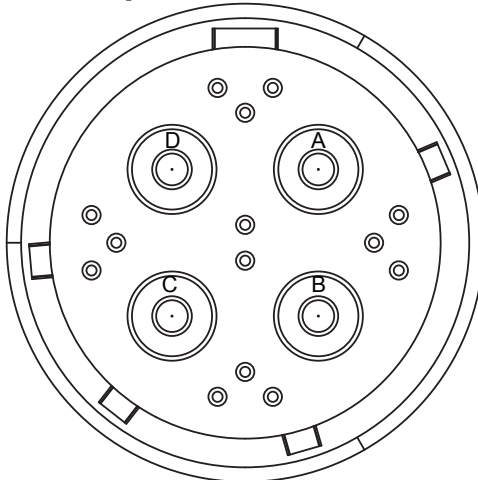
DVI Media Converters

Pin	Function	+/-	Optical Port	Pin	Function	+/-	Optical Port	
A	No Connect	N/A	N/A	K1	TMDS - Red	+	B	
B1	TMDS - Blue	+	D	K2	TMDS - Red	-		
B2	TMDS - Blue	-		K3	No Connect	N/A		
B3	No Connect	N/A	N/A	K4	No Connect	N/A		
B4	No Connect	N/A		L	No Connect	N/A		
C	No Connect	N/A	N/A	M	No Connect	N/A	N/A	
D	No Connect	N/A		N	No Connect	N/A		
E	No Connect	N/A		C	P1	TMDS - Clock	+	A
F1	TMDS - Green	+			P2	TMDS - Clock	-	
F2	TMDS - Green	-	N/A	P3	No Connect	N/A	N/A	
F3	No Connect	N/A		P4	No Connect	N/A		
F4	No Connect	N/A	N/A	R	No Connect	N/A	N/A	
G	No Connect	N/A		S	No Connect	N/A		
H	No Connect	N/A		T	28VDC	N/A		
J	No Connect	N/A		U	GND	N/A		

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J2 OPTICAL INSERT ARRANGEMENT

TOP
Optical Interface



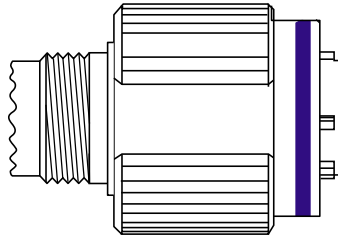
Front face of the optical insert shown, fiber optic cable plug opposite - see Appendix A1 for details

APPENDIX A1

Mating Fiber Optic Cable - Plug Configuration

FIBER OPTIC CABLE PLUG - SOCKET INSERT

ESTERLINE SOURIAU PART NUMBER = 8D5Q19x84SN621L x = Finish Code



SIZE 8 CAVITY ADAPTOR FOR ELIO TERMINI

ESTERLINE SOURIAU PART NUMBER = ELIOAQ6SB



ESTERLINE SOURIAU ELIO TERMINI

ELIO[®] multimode contact Ordering information

ELIO	09N	G	L	A
Cable external diameter & Contact sealing:				
09N: 0.9 ^{mm} , Non waterproof				
19N: from 1.5mm to 1.9mm, Non waterproof				
19W: 1.8 ^{mm} , Waterproof				
20N: from 1.7mm to 2.1mm, Non waterproof				
20W: 2.0 ^{mm} , Waterproof				
Fibre type:				
G: ELIO [®] Multimode				
Boot type:				
L: Long boot				
S: Short boot				
N: No boot (non waterproof version only)				
Contact version index:				



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APPENDIX A2
PART NUMBER OPTIONS

Kestrel Series Video Media Converters

E44 F - 4 X AV - F X

Product Function

E44= Video Media Converters

Shell Configuration

F = Flange Mount

of Fiber Ports

4 = 4

Transmitter or Receiver

T = TX

R = RX

Power Supply Voltage

A = 28.0VDC

Electrical Interface

V = DVI

D38999 Shell Size

F = 19

Shell Plating

F = NI

W = OD CD / NI

Z = ZN / NI



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