

# Kestrel Series

4xSMPTE 424M Fiber Optic Media Converters, D38999, 28VDC, Multimode, 850nm, Quadrax

## 4xSMPTE 424M Fiber Optic Links

### FEATURES

- Compliant with SD/HD-SDI / SMPTE 424/424M applications from 270Mbps to 2.97Gbps
- 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 4xSMTPE 424M fiber optic media converters enable high speed video transmission over long distances in harsh environments.

- Fiber optic link extension
- Remote camera clusters
- Alternative camera configurations

The MIL-DTL-38999, Series III shell provides 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 4xSMPTE 424M 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 4xSMPTE 424M fiber optic media converters is a D38999/19-18 4xQuadrax connector.

Kestrel series SMPTE 4x424M 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
4xSMPTE 424M Fiber TX, 28VDC	E44F-4TAS-FW
4xSMPTE 424M Fiber RX, 28VDC	E44F-4RAS-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 <sup>2</sup> /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 <sup>-12</sup> )	$P_o$	-6.5		-1.0	dBm
Optical Output Wavelength	$\lambda_{OUT}$	830	850	860	nM
Spectral Width	$\Delta\lambda_{RMS}$			0.85	nM

**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 <sup>-12</sup> ) SMPTE 292M SMPTE 424M	$P_i$	-17.0 -15.0		0.0	dBm
Optical Wavelength	$\lambda_{IN}$	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

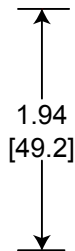
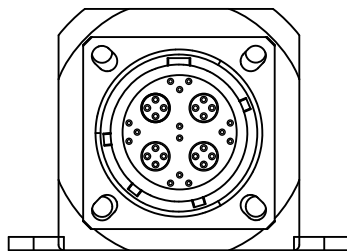
Kestrel Series D38999 Video Media Converters

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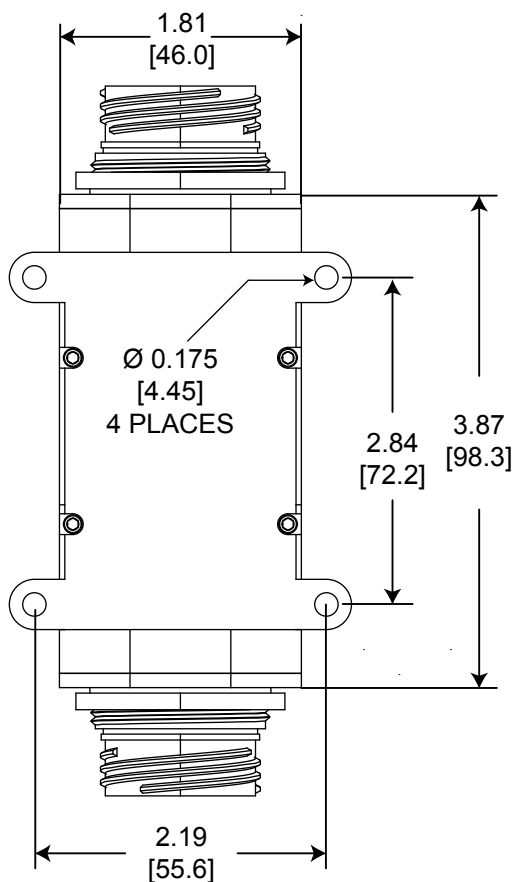
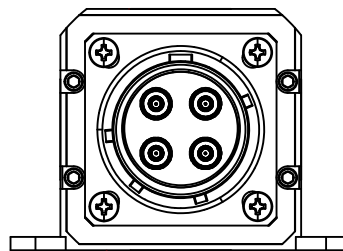
**OUTLINE DRAWING**

Dimensions are shown as: inches (mm)

J1  
D38999/20WF18PN



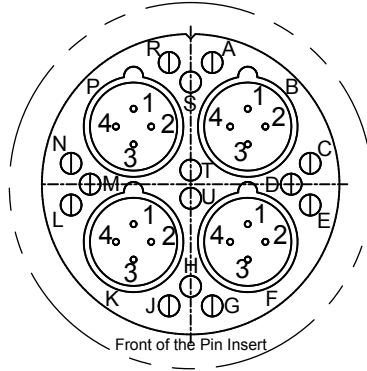
J2  
D38999/20WF84PN Equiv.



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## J1 Pin Functions

### Electrical Data Connector Wiring Schematic



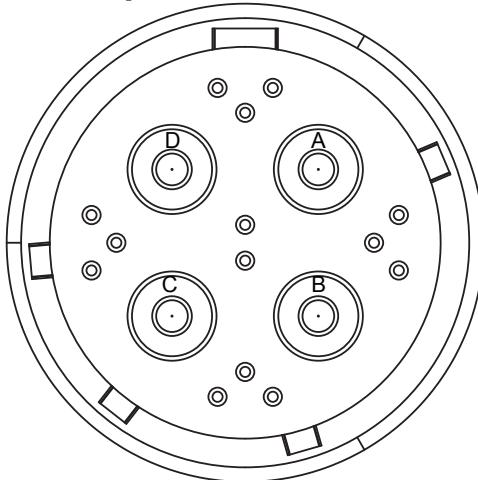
SMPTE 424M Media Converters

Pin	Function	Optical Port	Pin	Function	Optical Port
A	No Connect	N/A	K1	SDI/O	B
B1	SDI/O	D	K2	$\overline{\text{SDI/O}}$	
B2	$\overline{\text{SDI/O}}$		K3	No Connect	N/A
B3	No Connect	N/A	K4	No Connect	
B4	No Connect		L	No Connect	
C	No Connect	N/A	M	No Connect	N/A
D	No Connect		N	No Connect	
E	No Connect	N/A	P1	SDI/O	A
F1	SDI/O		P2	$\overline{\text{SDI/O}}$	
F2	$\overline{\text{SDI/O}}$	C	P3	No Connect	N/A
F3	No Connect		P4	No Connect	
F4	No Connect	N/A	R	No Connect	N/A
G	No Connect		S	No Connect	
H	No Connect	N/A	T	28VDC	N/A
J	No Connect		U	GND	

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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

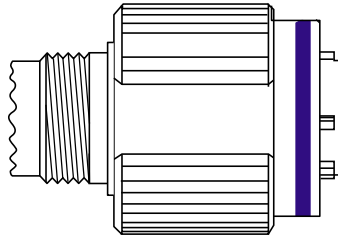
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## APPENDIX A1

### 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
<b>Cable external diameter &amp; Contact sealing:</b>				
09N: 0.9 <sup>±0.1</sup> mm. Non waterproof				
18N: from 1.5mm to 1.9mm. Non waterproof				
18W: 1.8 <sup>±0.1</sup> mm. Waterproof				
20N: from 1.7mm to 2.1mm. Non waterproof				
20W: 2.0 <sup>±0.1</sup> mm. Waterproof				
<b>Fibre type:</b>				
G: ELIO® Multimode				
<b>Boot type:</b>				
L: Long boot				
S: Short boot				
N: No boot (non waterproof version only)				
<b>Contact version index</b>				



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**APPENDIX A2**  
**PART NUMBER OPTIONS**

Kestrel Series Video Media Converters - SMPTE 424M

**E44 F - 4 X A S - 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

S = SMPTE 424M

D38999 Shell Size

F = 19

Shell Plating

F = NI

W = OD CD / NI

Z = ZN / NI



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