

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-4 T AV-FW |
| DVI Fiber Receiver , 28VDC | E44F-4 R AV-FW |

See Appendix A2 for more part number options

Facilitating Secure Communications in Harsh Environments

Kestrel Series D38999 Video Media Converters DVI, 28VDC, 850nm

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 | |

Facilitating Secure Communications in Harsh Environments

Kestrel Series D38999 Video Media Converters
DVI, 28VDC, 850nm

OPTICAL TRANSMITTERS T_A = Operating Temperature Range, V_{CC} = 18.0V 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 = Operating Temperature Range, V_{CC} = 18.0V 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 |

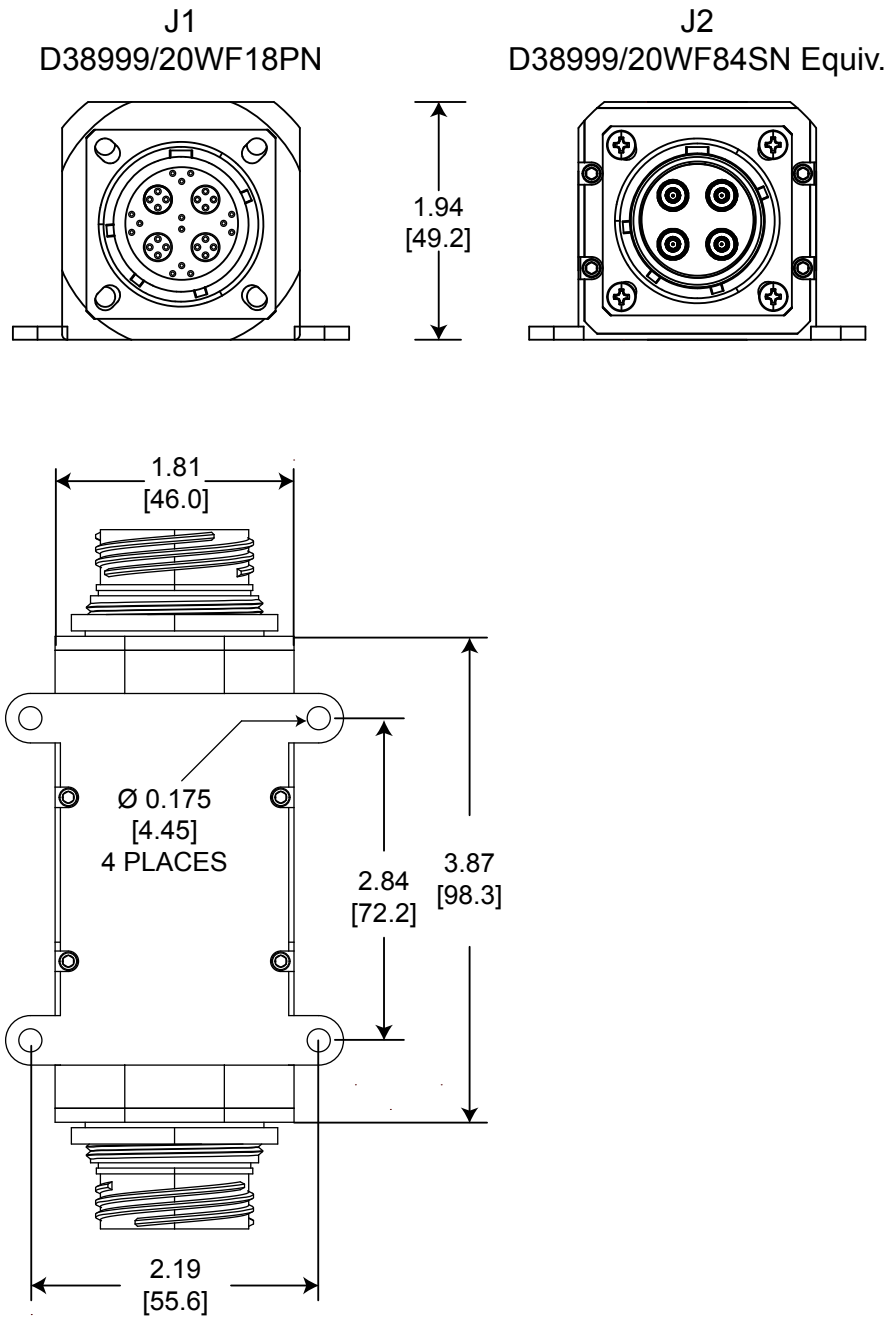
POWER SUPPLY CURRENT T_A = Operating Temperature Range, V_{CC} = 18.0V to 36.0V

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

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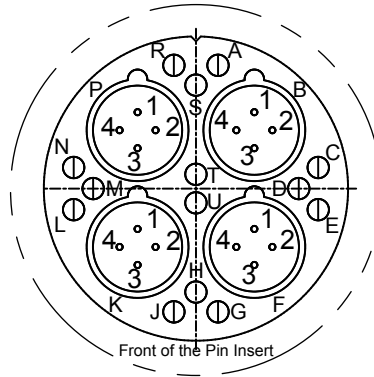
OUTLINE DRAWING

Dimensions are shown as: inches (mm)



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J1 Pin Functions Electrical Data Connector Wiring Schematic



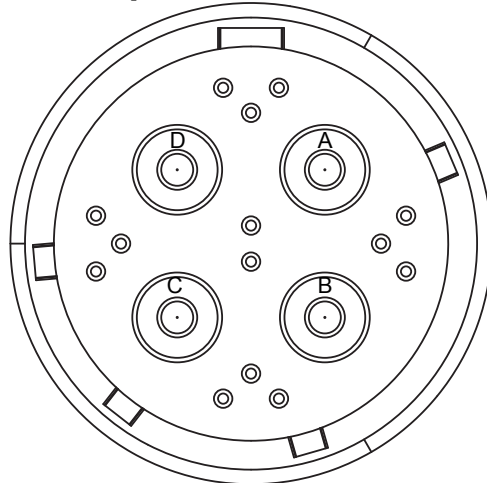
DVI Media Converters

| 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 | + | N/A |
| B2 | TMDS - Blue | + | | K3 | No Connect | N/A | |
| B3 | No Connect | N/A | N/A | K4 | No Connect | N/A | 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 | N/A | T | 28VDC | N/A | 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

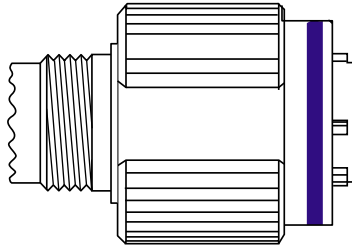
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APPENDIX A1

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 |
|---|-----|---|---|---|
| Cable external diameter & Contact sealing: | | | | |
| 09N: 0.9 ^{±0.1} mm. Non waterproof | | | | |
| 18N: from 1.5mm to 1.9mm. Non waterproof | | | | |
| 18W: 1.8 ^{±0.1} mm. Waterproof | | | | |
| 20N: from 1.7mm to 2.1mm. Non waterproof | | | | |
| 20W: 2.0 ^{±0.1} 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 | | | | |

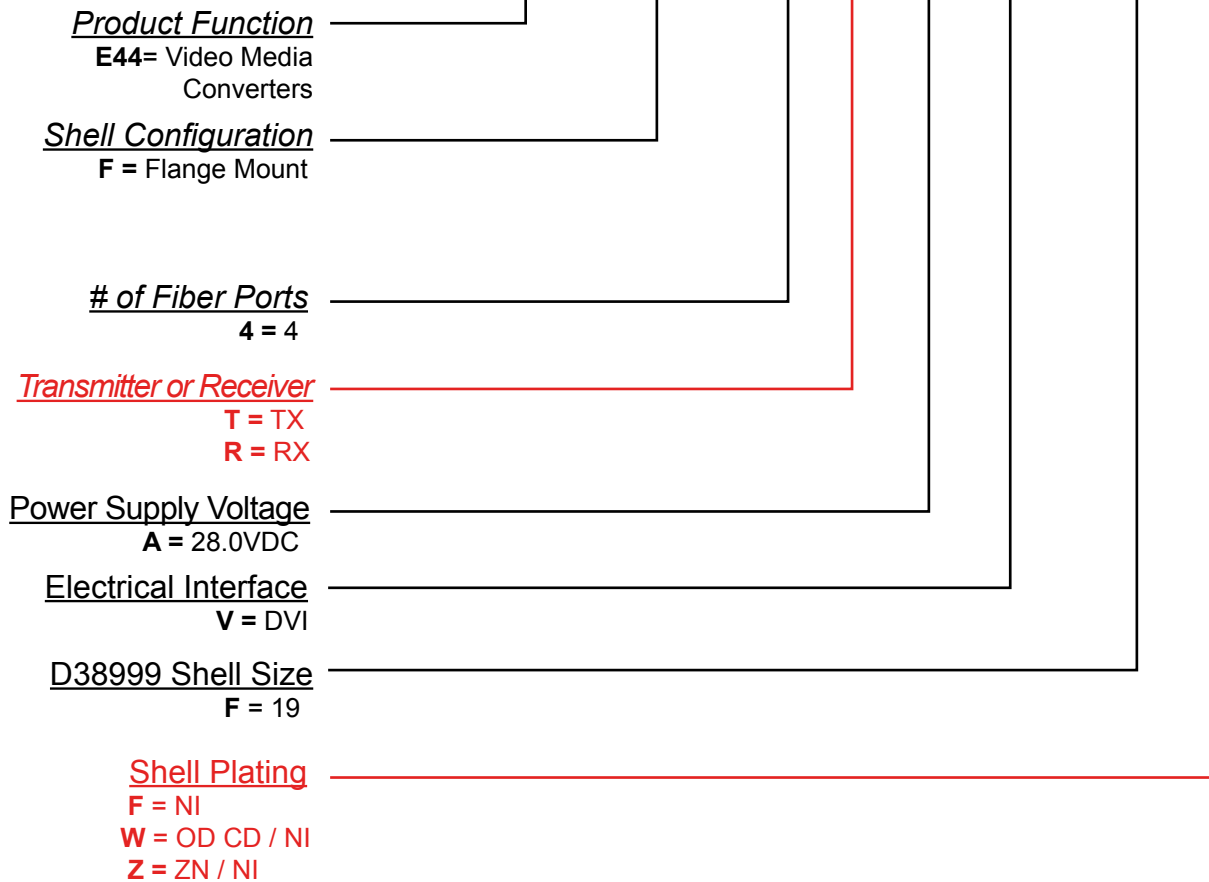


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APPENDIX A2 PART NUMBER OPTIONS

Kestrel Series Video Media Converters

E44 F - 4 X AV - F X



Other mounting and interface options are available.
Please consult the Protokraft website for alternate configurations.