

# CTF-QUADRAX BASED MEDIA CONVERTER SOLUTIONS

PDS-285



## DESCRIPTION

CTF-Quadrax technology is the embedding of a transmit or receive optical sub-assembly into a Quadrax contact. Quadrax is a size 8 keyed contact with 4 or 8 pins used in high speed copper signaling applications. The embedding of a TOSA/ROSA into this component provides the ability to utilize a Quadrax connector for media converter applications. ROSA/TOSA components are available in all major fiber protocols to include 850nm multi-mode, 1300nm multi-mode (typically used in 100-Base-FX applications), 1310nm single mode, and other varieties for support of a plethora of interfaces customers are utilizing in platforms and systems.



## STEPS TO CONFIGURE A COMPONENT:

### 1. Determine Requirements

What interfaces need conversion?

What specific copper/fiber protocols are being used?

- **Ethernet copper** - Ex: SGMII, 100/1000-Base-KX, XAUI
- **Ethernet fiber** - Ex: 100-Base-FX, 1000-Base-LX/EX/SX
- **Others** - Ex: DVI, PCI-Express, Fiber Channel, SDI, HD-SDI, 3G-HD-SDI, Other

How many channels of each?

For each channel, is a TX/RX pair needed or just RX or TX?

### 2. Determine Shell Size of Converter

- SS 25 - 8 cavities; 23-6; 19-4; 17-2; 9-1
- Determine, on each cavity, which interface goes where
- Determine Samtec HQDP style - straight/right angle mount, shielded, length of HQDP ribbon

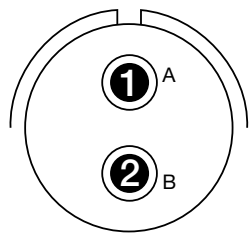
### 2. Determine Special Requirements

- Di-electric or metallic insert?
- Sealing behind 38999? What Level of Hermeticity?
- Shell Material : Stainless Steel or Aluminum
- Plating needed, rotations

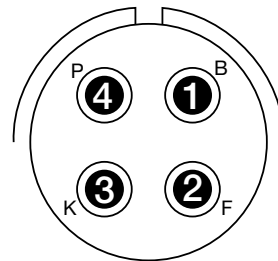


# ACTIVE COMPONENT OPTIONS

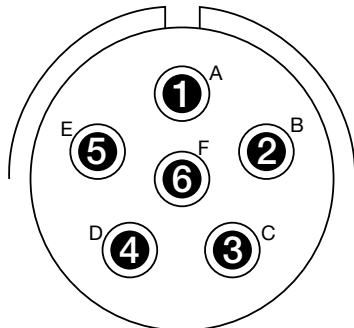
Part Number	Wavelength	Mode	Max Speed
CF-170900-000	850nm VCSEL	MM	4.25 Gbps Tx
CF-170900-001	850nm PIN + TIA	MM	4.25 Gbps Rx Encoded
CF-170900-020	850nm PIN + TIA	MM	4.25 Gbps Rx Pathological
CF-170900-024	1310nm LED	MM	125Mbps Tx
CF-170900-025	1310nm Photodiode	MM	125Mbps Rx
CF-170900-010	1310nm DFB Laser	SM	2.5 Gbps Tx
CF-170900-011	1310nm Photodiode	SM	2.5 Gbps Rx



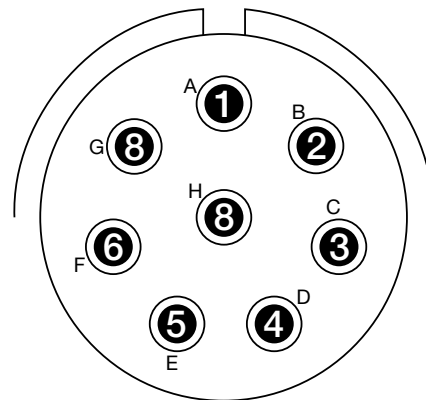
Shell Size 17 - 2 Locations



Shell Size 19 - 4 Locations



Shell Size 23 - 6 Locations



Shell Size 25 - 8 Locations

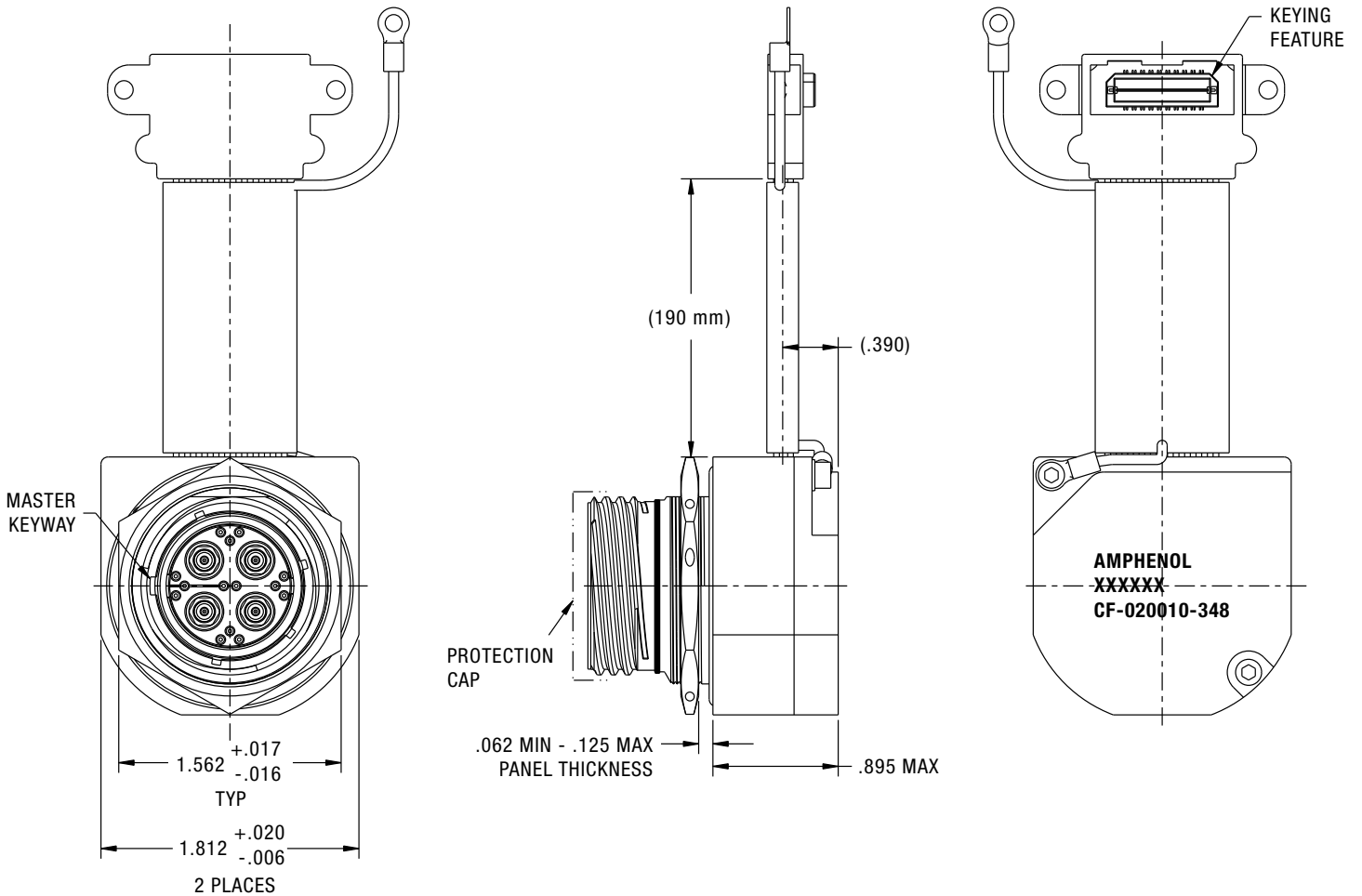
## KEY MECHANICAL DIMENSIONS

- Max width dimension is .895 inches
- Samtec ribbon length is per customer request
- Shell size grows as customer uses larger configuration (from size 9 up to shell size 25)

**EXAMPLE:**  
**CF-020010-348**

**2TX, 2RX 850nm/1300nm MM**

- 1Tx, 1Rx 850nm conversion for multi-mode fiber up to 4.25Gbps
- 1Tx, 1Rx 1300nm conversion for multi-mode fiber up to 125Mbps
- Specific application is Ethernet for 1000-Base-SX and 100-Base-FX protocols
- Shielded and grounded Samtec HQDP ribbon
- Passivated stainless steel

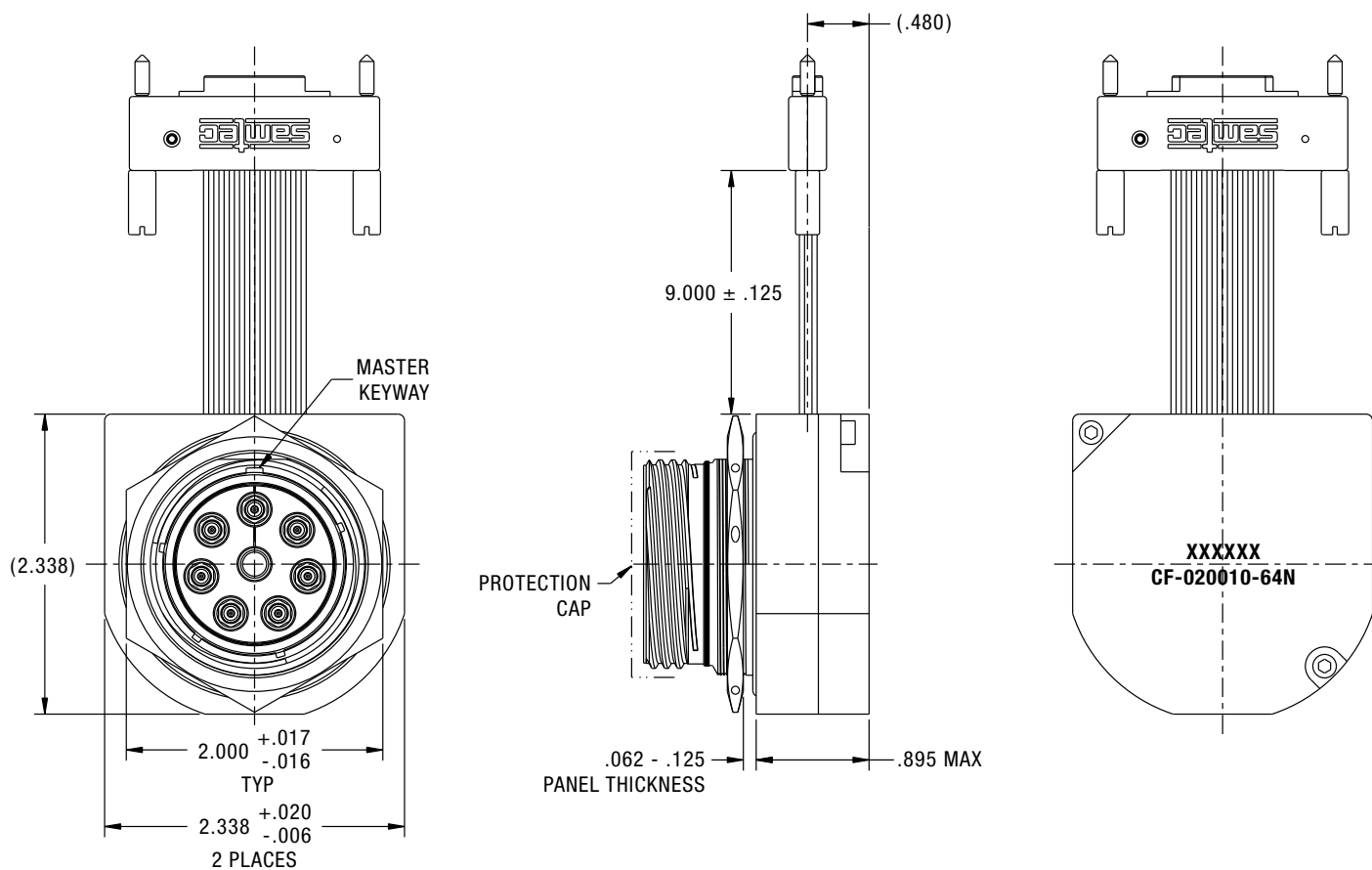


# EXAMPLE:

## CF-020010-64N

### 2TX; 5RX 850nm MM

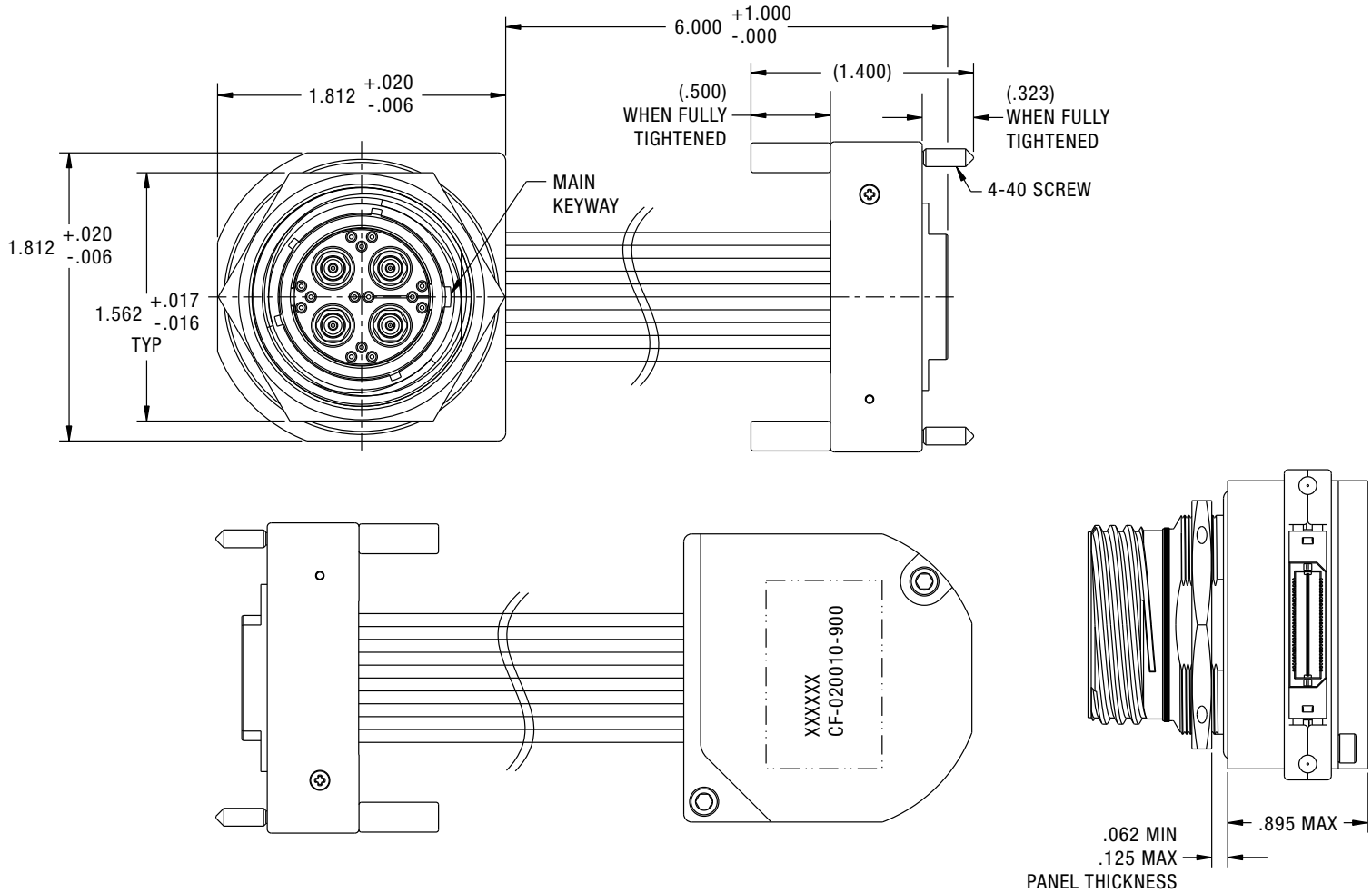
- 2Tx, 2Rx 850nm conversion for multi-mode fiber up to 4.25Gbps
- 3Rx 850-nm conversion for multi-mode fiber up to 4.25Gbps for pathological data
- Specific application is Ethernet for 1000-Base-SR and 3G-HD-SDI
- Samtec HQDP ribbon
- Durmalon plated aluminum shell
- Ground plane metallic insert



**EXAMPLE:**  
**CF-020010-900**

**4TX 850nm MM**

- 4Tx 850nm conversion for multi-mode fiber up to 4.25Gbps
- Specific application is multi-mode fiber for DVI copper/fiber conversion
- Samtec HQDP ribbon
- OD-Cad plated aluminum shell

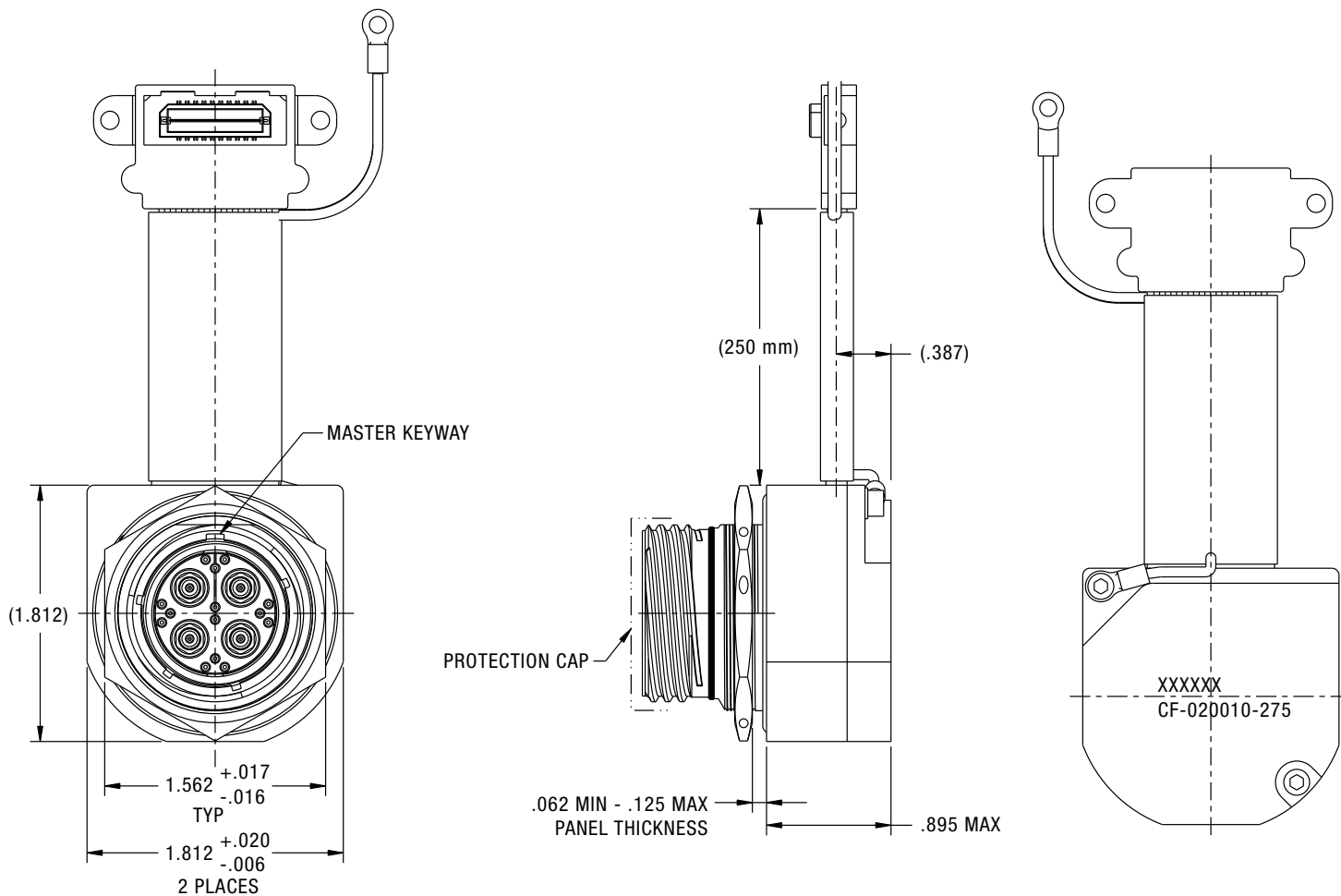


# EXAMPLE:

## CF-020010-275

### TX, 1RX 850NM MM

- 3Tx and 1Rx 850nm conversion for multi-mode fiber up to 4.25Gbps
- Specific application is multi-mode Ethernet and SFDP connections
- Samtec HQDP ribbon
- OD-Cad plated aluminum shell



# HOW TO CONFIGURE A PLUG

## CTF-QUAD MATING PLUG

Ordering procedure is shown below using part number CTF-5P96A1-000N  
(kit with connector and appropriate number of A801 cavity adapters)

1.	2.	3.	4.	5.	6.	7.
Connector Type	Material	Quadrax Contact	Finish	Shell Style	Shell Size - Insert Arrangement	Rotation
CTF	5	P	Z	6	A1	N

### 1. Connector Type

	Designates
CTF	Copper to Fiber Product Family

### 2. Select A Material

	Designates
5	Aluminum Shell
6	Composite Shell
8	Stainless Steel Shell

### 3. Quadrax Contact

	Designates
P	Quadrax Size 8 Contact Adapter for ARINC 801 Contact

### 4. Select a Finish

	Designates
T	Aluminum Durmalon
Z	Aluminum Black Zinc Nickel
F	Aluminum Electroless Nickel
M	Composite Electroless Nickel
W	Aluminum OD Cad
J	Composite OD Cad
L	Stainless Steel Electrodeposited Nickel
Y	Stainless Steel Passivated*

\*environmental only-not hermetic  
Note: There is not a Mil-Spec finish for environmental passivated steel-only hermetic, hence the asterisk.

### 5. Select a Shell Style

	Designates
6	Straight Plug

Note: No Stand-off, accessory threads

### 6. Select A Shell Size - Insert Arrangement

	Designates
A1	9-5
E2	17-52
F4	21-75
H6	23-6
J8	25-8

### 7. Select a Rotation

	Designates
N	Normal
A	
B	
C	
D	
E	

# TECH SPECS

## RUGGED RS-422 CONCENTRATOR

<b>Power</b>	13V-32-V DC power interface; 5 Watts Max
<b>Copper RS-422</b>	6 fully compliant optically isolated interfaces for concentration; 1 fully compliant optically isolated interface for built-in-test and diagnostics
<b>Ethernet Fiber Connectivity</b>	1 transmitter; 1 receiver 850nm multi-mode 1Gbps transmitter/receiver Min power output -4dBm; Max receiver sensitivity -20dBm

### Temperature

- Operating Temperature - Thermal Cycles between -40°C and 85°C while device is operating
- Temperature is measured at chassis housing or card edge
- Storage Temperature - Thermal Cycles between -55°C and 125°C

### Humidity

- Operating Humidity – Humidity cycle between 0-100% non-condensing humidity while device is operating
- Storage Humidity – Humidity cycle between 0-100% condensing humidity

### Sealing

- Sealing can be optionally provided at the MIL-DTL-38999 interface with up to 10-5 cc/sec performance

### Fluids Susceptibility

- MIL-DTL-38999 receptacle interface per EIA-364-10E

### Vibration & Shock

- Sine Vibration – 10 g Peak, 5-2,000Hz  
-Based on a sine sweep duration of 10 minutes per axis in each of three mutually perpendicular axes. May be displacement limited from 5 to 44 Hz, depending on specific test.
- Random Vibration - 0.005@5Hz, 0.1@15Hz, 0.1@2,000Hz  
-60 minutes per axis, in each of three mutually perpendicular axes.
- 40 G Peak Shock Cycle  
-Three hits in each axis, both directions, ½ sine and terminal-peak saw tooth, Total 36 hits.

### Altitude

- -1,500 to 60,000 ft Altitude Testing w/ Rapid Depressurization

### Electromagnetic Compatibility

- Designed to comply with MIL-STD-461E

### Printed Circuit Board Assemblies

- Conformal Coat  
-Amphenol performs Conformal Coating to both sides of printed circuit board assemblies using HUMISEAL IB31 in accordance with IPC-610, Class 3.
- Printed Circuit Board Rigidity  
-Amphenol printed circuit boards are fabricated in accordance with IPC-6012, Class 3.
- Printed Circuit Board Fabrication  
-Amphenol printed circuit boards acceptance criteria is in accordance with IPC-610, Class 3.

### Reliability Predictions (MTBF)

Amphenol can perform Mean Time Between Failure (MTBF) reliability analysis in full compliance with MIL-HDBK-217F-1 Parts Count Prediction and MIL-HDBK-217F-1 Parts Stress Analysis Prediction. We can also perform reliability analyses in full compliance of ANSI/MITA 51.1 if it is required or preferred over the later method.

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