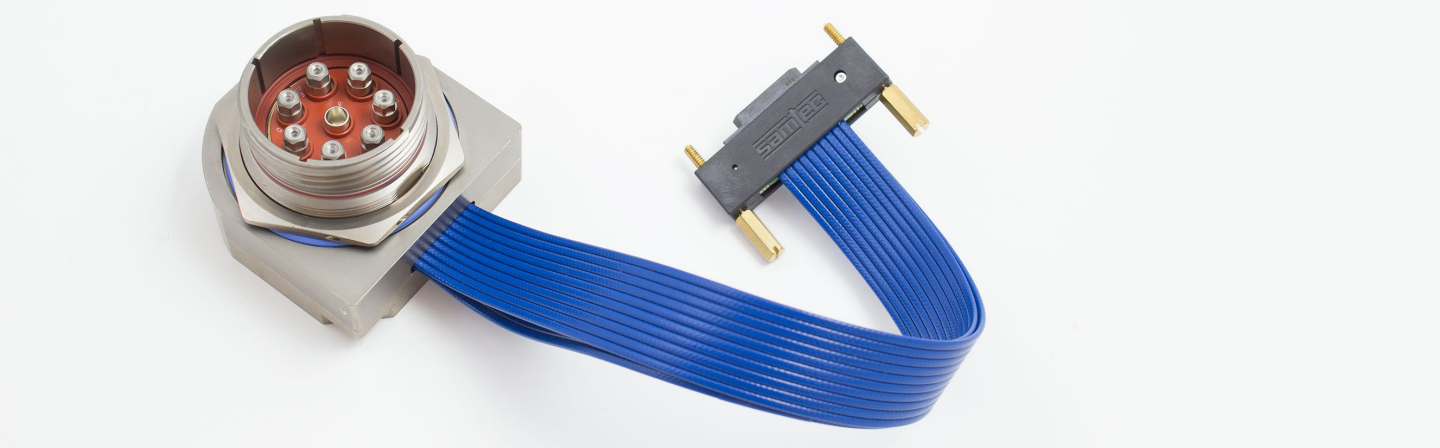
CTF-QUADRAX BASED
MEDIA CONVERTER SOLUTIONS

Amphenol Aerospace

PDS-285



DESCRIPTION

CTF-Quadrax technology is the embedding of a transmit or recieve 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/TOSA 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 mound, shielded, length of HQDP ribbon

2. Determine Special Requirements

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

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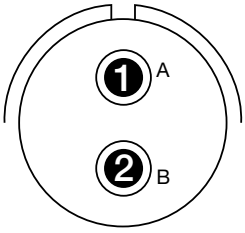
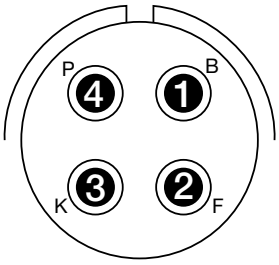
ACTIVE COMPONENT OPTIONS

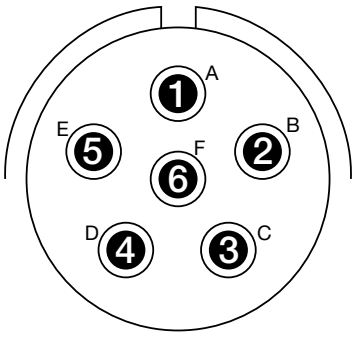
Part Number	Wavelength	Mode	Max Speed
CF-170900-000	850nm VCSEL	MM	4.25 Gbps Tx
CF-170900-001	850nm PIN + TIA	MM	4.25 Gbps Rx Encoded
CF-170900-020	850nm PIN + TIA	MM	4.25 Gbps Rx Pathological
CF-170900-024	1310nm LED	MM	125Mbps Tx
CF-170900-025	1310nm Photodiode	MM	125Mbps Rx
CF-170900-010	1310nm DFB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



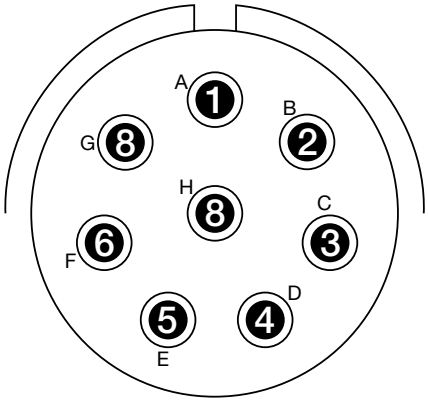
Shell Size 17 - 2 Locations



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)

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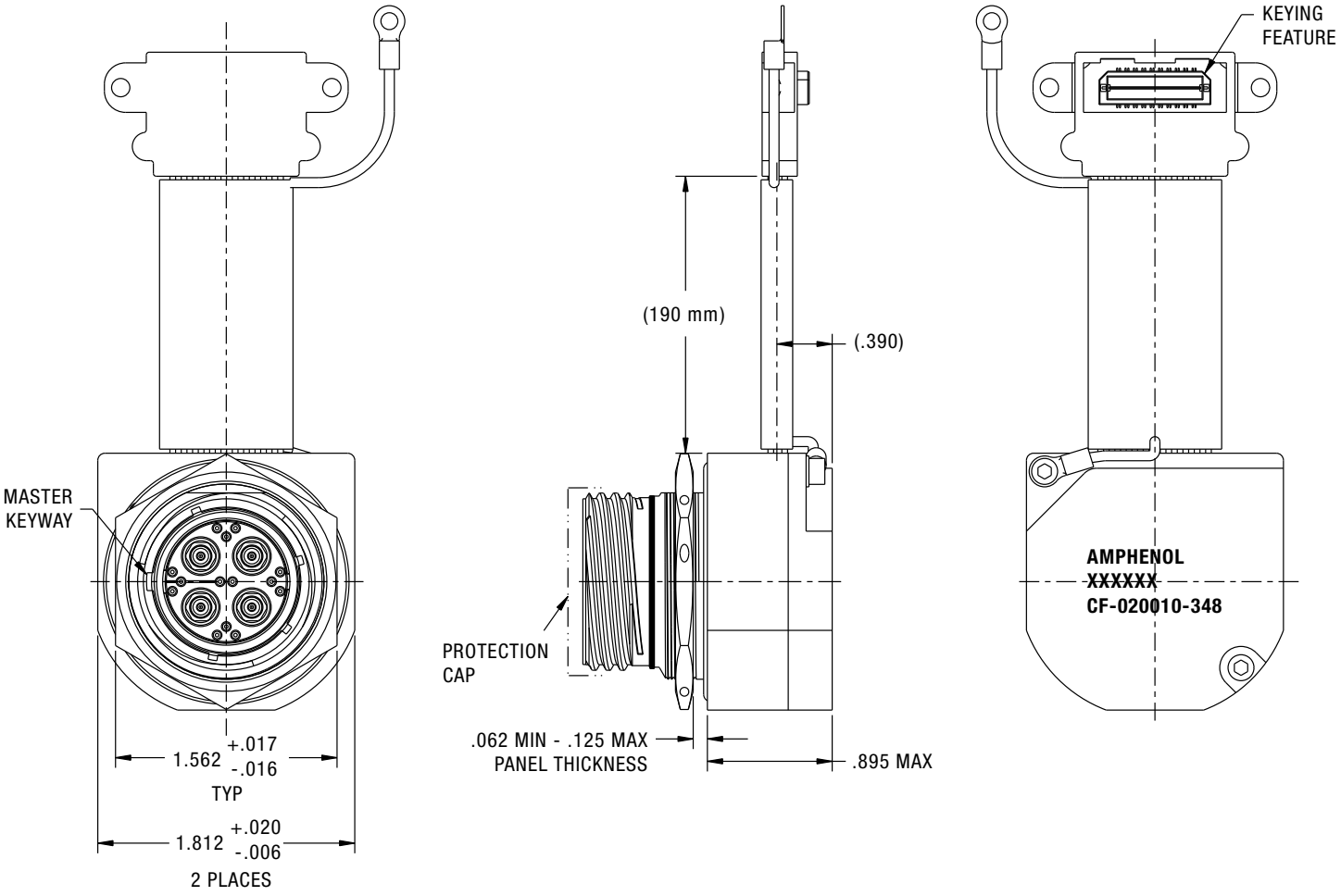
EXAMPLE:
CF-020010-348

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



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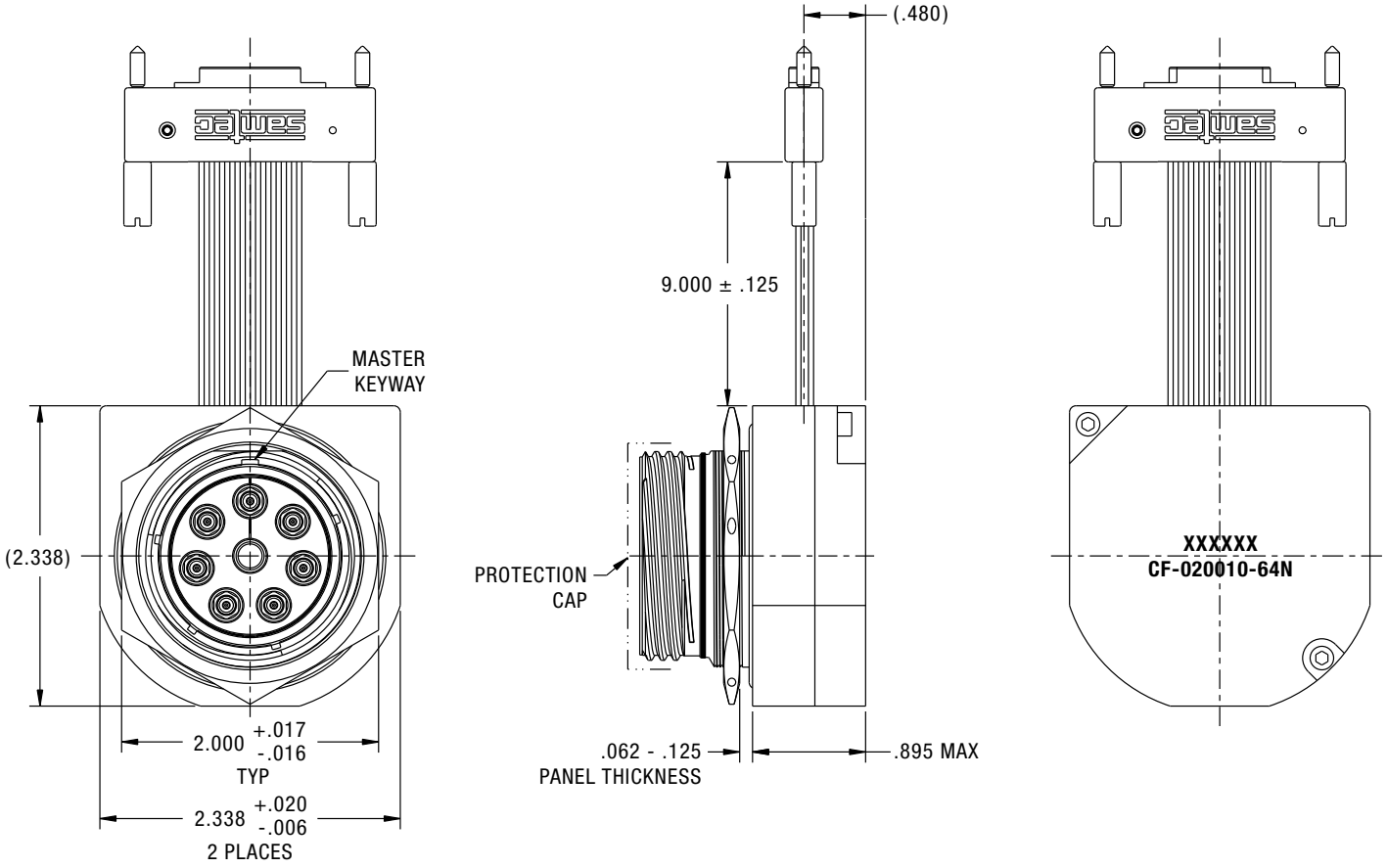
EXAMPLE:
CF-020010-64N

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



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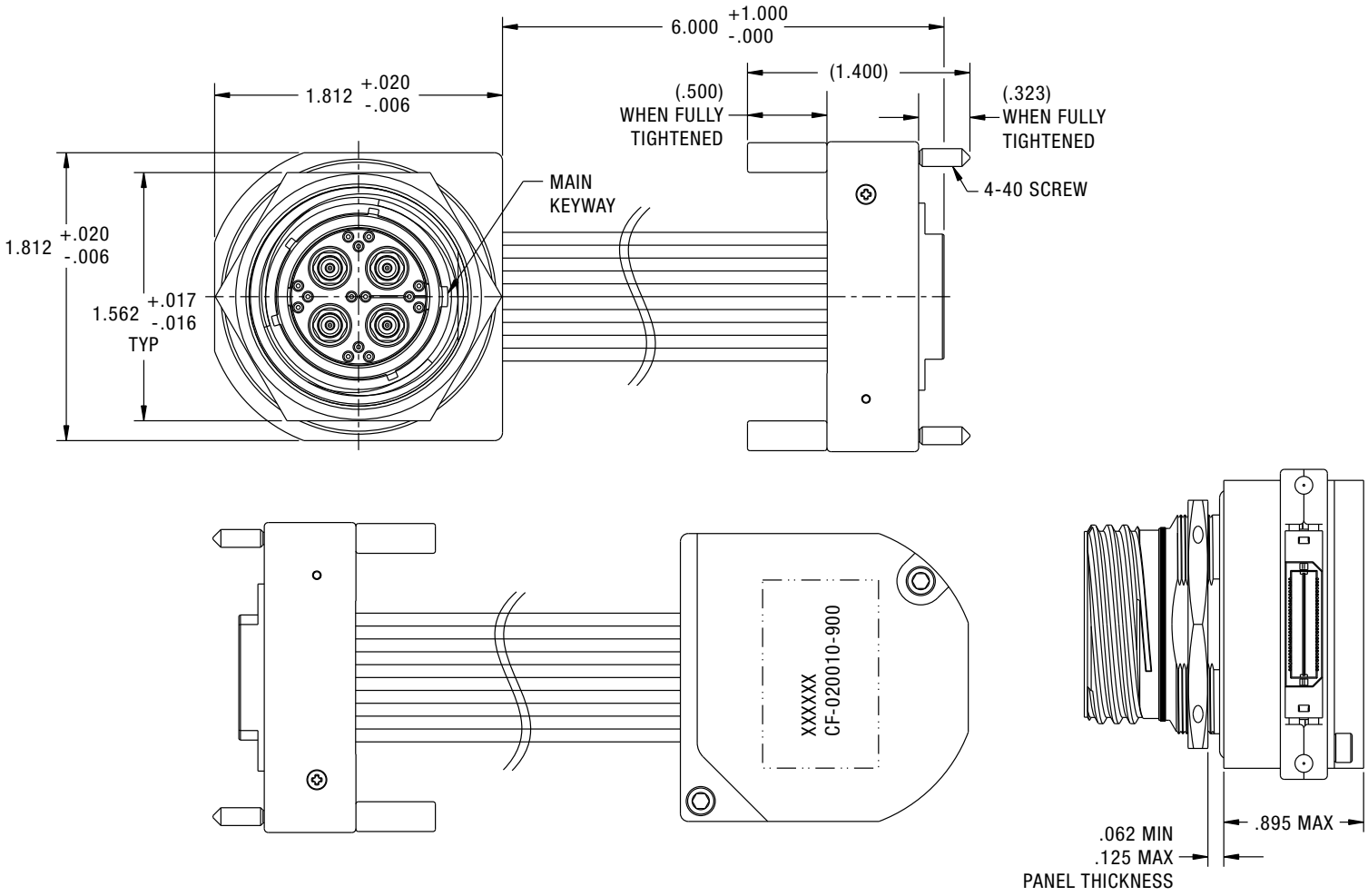
EXAMPLE:
CF-020010-900

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



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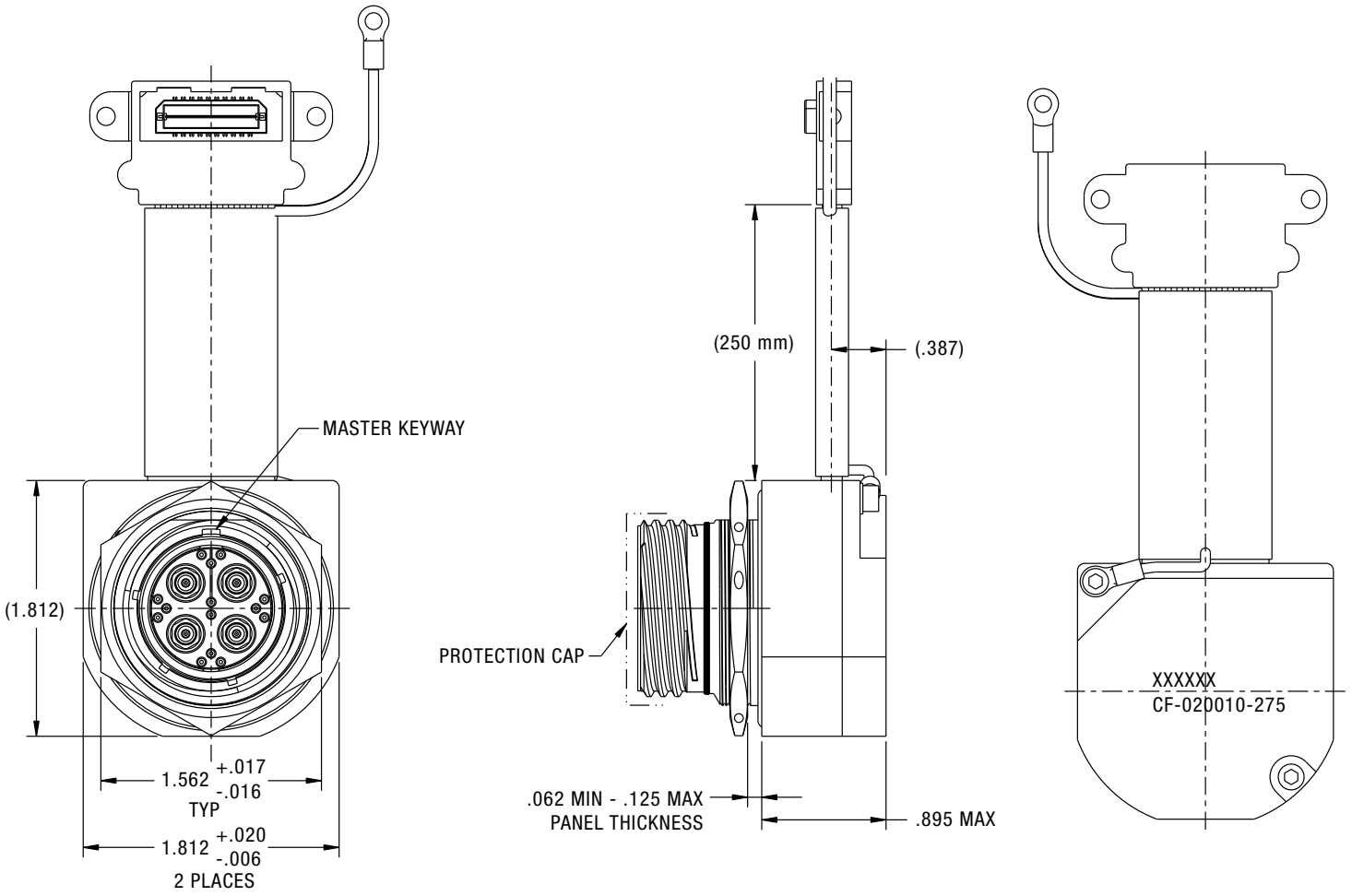
EXAMPLE:
CF-020010-275

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



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HOW TO CONFIGURE A PLUG

Amphenol Aerospace

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 Electrode-posited 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	

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TECH SPECS
RUGGED RS-422 CONCENTRATOR

Power	13V-32-V DC power interface; 5 Watts Max
Copper RS-422	6 fully compliant optically isolated interfaces for concentration; 1 fully compliant optically isolated interface for built-in-test and diagnostics
Ethernet Fiber Connectivity	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/VITA 51.1 if it is required or preferred over the later method.

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