

# High Speed Connectors

Quadrax • Twinax • Fiber Optic  
Connectors • Contacts • Cable Assemblies



# High Speed Quadrax and Twinax

## Overview

Sabritec offers a complete line of differential Twinax and Quadrax connectors, contacts, and cable assemblies for high speed Ethernet, Firewire, and Fibre Channel applications. Differential pair twinax and quadrax connectors offer superior performance in high speed matched impedance data-on-demand applications. The signal to signal and signal to shield characteristic impedance is maintained throughout the connector pair. A true twinaxial connector interface ensures signal integrity while minimizing jitter and data rate errors.



Sabritec manufactures connectors for the following protocols:

- Fibre Channel
- Ethernet: 10 Base-T, 100 Base-T, 1000 Base-T
- Firewire: IEEE 1394a and 1394b
- USB, DVI, and Infiniband



### Differential Twinax Contacts

Differential twinax contacts are designed for use in MIL-DTL-38999, MIL-DTL-83527, ARINC 404, ARINC 600 and D-Sub connectors series.

Twinax contacts consist of two inner contacts within a tubular shield to form 100 or 150 ohm differential impedance.



### Quadrax Contacts

Quadrax contacts consist of four center contacts (Quad configuration applications exceeding 2 Gbit/sec) forming two 100 or 150 ohm matched impedance differential pairs connected orthogonally. These contacts have a low impedance grounding shield and are ideal for Ethernet 100 Base-T (100 Ohm), Fibre Channel (150 ohm) and IEEE 1394b Firewire (110 ohm) applications.

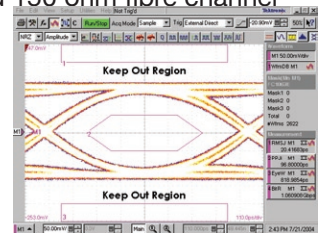


Sabritec has reverse gender inner contacts where the larger heat treated rigid socket contacts are protruding in reverse gender configuration.

These contacts are designed to provide a more reliable & rugged interconnect while still maintaining precise matched differential impedance and better blind mate capability with less chance of bent inner pins.

### Testing Capabilities

Sabritec can test eye pattern, jitter, skew, and insertion loss on differential pair 100 ohm and 150 ohm fibre channel and high speed Gigabit Ethernet applications with a wide variety of testing protocols. Our testing capabilities support wide bandwidth (DC to 50 GHz with up to 12.5 GHz Trigger). We utilize the Tektronix CSA8000 to measure the differential pair TDR impedance between twinax connectors, cable assemblies, and quad cable fibre channel interconnect systems. The CSA8000 ensures the most accurate acquired signal for high speed communications testing. CSA8000 testing features 20 GHz Bandwidth with 80E04 sampling module, 35 ps TDR Reflected Rise Time, Differential TDR, and Crosstalk.



Mechanical & Environmental Specifications	
Temperature Rating	-55°C to + 125°C
Corrosion	MIL-STD-202 Method 101 Test Condition B
Shock	MIL-STD-202 Method 213 Test Condition B
Vibration	MIL-STD-202 Method 204 Test Condition B
Thermal Shock	MIL-STD-202 Method 107 Test Condition B
Durability	500 Mate/Unmate cycles min.
Electrical Specifications	
Dielectric Withstanding Voltage	250 VDC max
Insulation Resistance	5.000 Mega Ohms min.
Contact Current Rating	3.0 Amps D.C. max.
Bandwidth	Up to 3 Gigahertz.
Data Rates	Exceeding 2 Gbits/sec
Differential Pair Cable Impedance	150 Ohm $\pm$ 15 Ohm 100 Ohm $\pm$ 10 Ohms
Signal to Shield Cable Impedance	75 Ohm $\pm$ 10 Ohm 50 Ohm $\pm$ 7 Ohms
Material & Finishes	
Shells	Brass per ASTM-B16 Nickel per SAE-AMS-QQ Gold per ASTM-B488 Aluminum per ASTM-B211 Electroless Nickel per MIL-C-26074 Cadmium per SAE-AMS-QQ-P-416
Insulators	PTFE per ASTM-D1710 Ultem per ASTM-D5205
Contacts	Brass per ASTM-B16 BeCu per ASTM-B196 Gold per ASTM-B4888

All specifications subject to change without notice.

Sabritec's connectors are fully intermateable with all slash sheet part #'s. Sabritec does not, however, offer standard QPL slash sheet part #'s for mil-dtl circular and rack & panel connectors because of the application specific nature of Sabritec's product offerings.



# Fiber Optic Connectors/Contacts

## Overview

Sabritec offers rugged connectors such as the MIL-DTL-38999 to house fiber optic contacts in size 5 and 12 expanded beam, size 16 butt-joint, DIN style and ARINC 801 termini. These technologies are capable of supporting wide bandwidth applications. All fiber optic connectors and contacts are offered fully terminated and tested ensuring signal integrity for ruggedized application environments.

When specifying these rugged connectors, Sabritec also offers a complete line of fiber optic connectors to terminate to the other end of the cables. These include Ruggedized Single Channel (RSC), FC, ST, LC Duplex/Simplex, MTP, MT-RJ, and Ruggedized SC connectors.

### ARINC 801 Terminus

- Single terminus design for all connector formats
- Pull-proof design (no strain relief backshell needed)
- Optical disconnect style available
- Hermaphroditic design (same contact on both sides of the connector)
- PC ferrule end face
- Polarization key allows APC polish for better return loss performance
- Compatible with multi-mode and single-mode fiber
- Standard 1.25 mm LC ferrule and termination process
- Cable termination identical to LC connector process
- Insertion loss: -0.25 dB (typical) mated pair



### Size 5 Expanded Beam Contacts

- Robust pin & socket versions
- Multimode applications 62.5/125 & 50/125  $\mu\text{m}$
- Available for ARINC or MIL-DTL-38999 applications
- Reduced influence from alignment errors
- Increased protection for fiber
- Reduced influence from dirt and debris
- Simple cleaning
- Insertion loss: -0.8 dB (typical) mated pair



### Size 12 Expanded Beam Contacts

- Fits standard size 12 contact cavities for MIL-DTL-38999 (dimensionally identical to size 12 electrical contacts per M39029/56-353 and M39029/58-365)
- Multimode applications 50/125 and 62.5/125  $\mu\text{m}$
- Insertion loss: -1.0 dB (Typical) mated pair
- Increased protection for fiber face
- Reduced influence from dirt debris and vibration
- Simple cleaning
- Insert arrangements for MIL-DTL-38999 include: 13-2, 15-4, 17-6, 21-11 and 25-19 (other custom arrangements available, consult factory)



### Size 16 Butt-Joint Contacts

- Robust pin and socket design
- Singlemode & Multimode applications 62.5/125 and 50/125  $\mu\text{m}$
- Connector formats for MIL-DTL-38999, ARINC 600
- Excellent optical performance
- Fewer parts, easy termination process
- Physical contact polish provides low insertion loss and low back reflection
- Meets or exceeds all applicable requirements of MIL-T-29504
- Insertion loss: -0.25 dB (typical) mated pair



MIL-DTL-38999  
CONNECTORS Pg. 2

QUADSPLITTER  
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ARINC 404  
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MIL-DTL-83527  
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# MIL-DTL-38999 High Speed Connectors

## MIL-DTL-38999 Ordering Information

### Part Number Description Code

38999 - B - W - C - 21 - 75 - P - C - N

PREFIX:

SERIES:

- A - I
- B - III
- C - IV

SHELL STYLE:

- J - Jam Nut (Rear Mount)
- W - Wall Mount (Front or Rear Mount)
- P - Plug

MATERIAL/PLATING:

- C - Aluminum Alloy/Cadmium over Nickel
- N - Aluminum Alloy/Electroless Nickel
- S - Stainless Steel/Passivated
- CC - Composite/Cadmium over Nickel
- CN - Composite/Electroless Nickel

(Consult factory for alternate plating options)

**Note: Twinax/Quadax Contacts are sold separately**

Sabritec's connectors are fully intermateable with all slash sheet part #'s. Sabritec does not; however, offer standard QPL slash sheet part #'s for mil-dtl circular and rack & panel connectors because of the application specific nature of Sabritec's product offerings.

POLARIZATION:

- N, A, B, C, D, E

CONTACT TERMINATION:

- P - PC Tail
- C - Crimp

CONTACT TYPE:

- P - Pin
- S - Socket

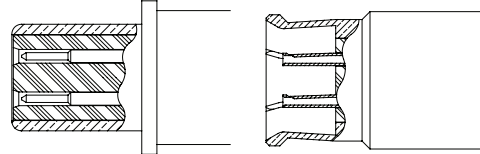
INSERT ARRANGEMENT:

See Page 5 for Size 8 Arrangements  
See Page 6 for Size 10 Arrangements

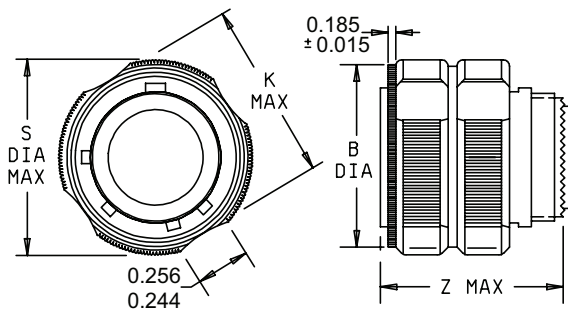
SHELL SIZE:

9 thru 25

**Quadax Reverse Gender Interface**

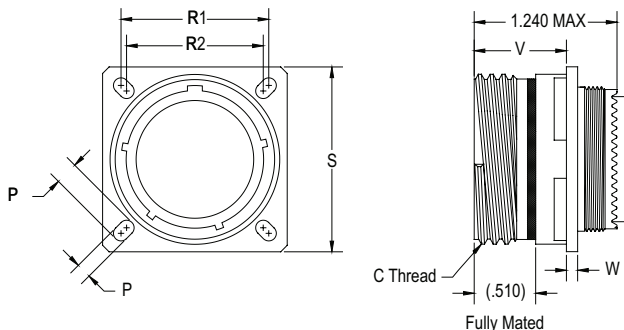


### MIL-DTL-38999 Twinax/Quadax Plug



Shell Size	B Dia. +.008 -.0	K Max	S Dia. Max	Z Max
9	0.724	0.748	0.858	1.22
11	0.831	0.862	0.984	
13	1.000	1.028	1.157	
15	1.13	1.154	1.28	
17	1.268	1.291	1.406	
19	1.374	1.398	1.516	
21	1.5	1.524	1.642	
23	1.618	1.642	1.768	
25	1.744	1.768	1.89	

### MIL-DTL-38999 Twinax/Quadax Receptacle



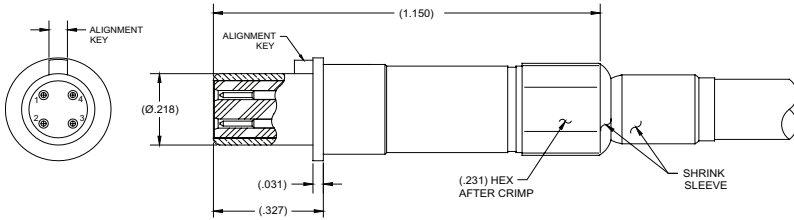
Shell Size	C Thread .1 Pitch .3 Lead	P ±.008	R1 BSC	R2 BSC	V Max +0.00 - .005	W Max	PP Max ± .008	S ±.012
9	0.625	0.128	0.719	0.594	0.820	0.098	0.216	0.937
11	0.75		0.812	0.719			0.194	1.031
13	0.875		0.906	0.812			0.173	1.126
15	1.000		0.969	0.906			0.194	1.220
17	1.188		1.062	0.969				1.311
19	1.25		1.156	1.062				1.437
21	1.375	0.154	1.250	1.156	0.790	0.126	2.42	1.563
23	1.500		1.375	1.250			1.689	
25	1.625		1.500	1.375			1.811	



# MIL-DTL-38999 Quadrax Contacts

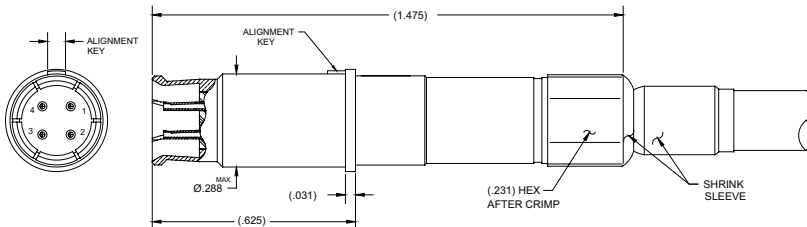
## Size 8 Quadrax Contacts For MIL-DTL-38999 Series III

### Size 8 Quadrax Pin 100 Ohm



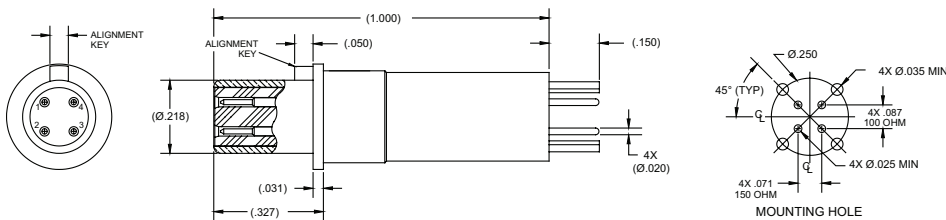
Part Number	Cable Type	Cable
019635-0001	Differential Quad	540-1183-000

### Size 8 Quadrax Socket 100 Ohm



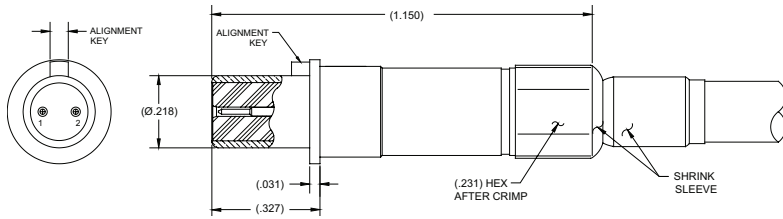
Part Number	Cable Type	Cable
019535-0001	Differential Quad	540-1183-000

### Size 8 Quadrax Pin 100 Ohm PCB Mount



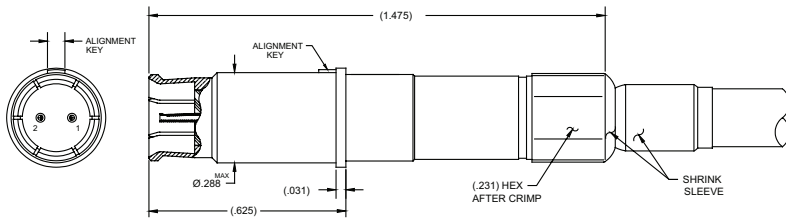
Part Number	Ohms
019617-0013	100

### Size 8 Twinax Pin Contact 100 and 150 Ohm



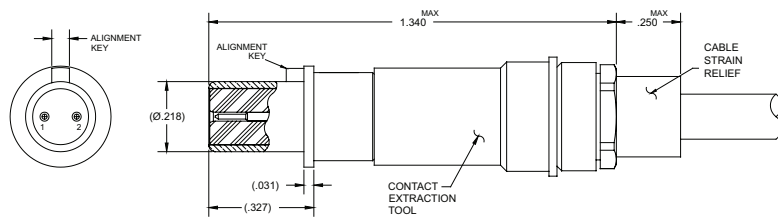
Part Number	Cable Type	Cable
019634-0011	Differential Twinax	540-1167-000
019634-0012	Differential Twinax	540-1161-000
019634-0013	Differential Twinax	540-1153-000
019634-0014	Differential Twinax	540-1099-000

### Size 8 Twinax Socket Contact 100 and 150 Ohm



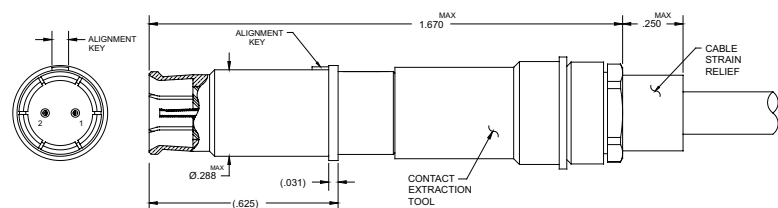
Part Number	Cable Type	Cable
019534-0011	Differential Twinax	540-1167-000
019534-0012	Differential Twinax	540-1161-000
019534-0013	Differential Twinax	540-1153-000
019534-0014	Differential Twinax	540-1099-000

### Size 8 Twinax Pin 150 Ohm



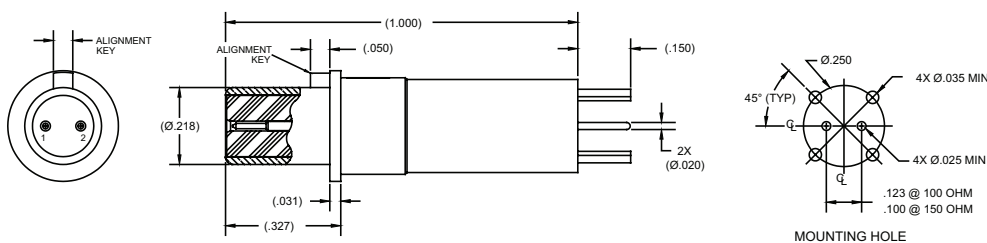
Part Number	Cable Type	Cable
019634-0015	Differential Twinax	540-1114-000

### Size 8 Twinax Socket 150 Ohm



Part Number	Cable Type	Cable
019534-0015	Differential Twinax	540-1114-000

### Size 8 Twinax Pin 100 and 150 Ohm PCB Mount

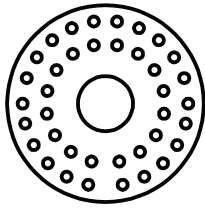


Part Number	Ohms
019617-0011	100
019617-0012	150

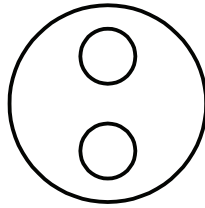


# MIL-DTL-38999 Insert Arrangements

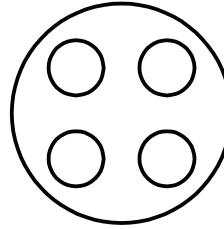
## Quadrax and Twinax Contact Layouts



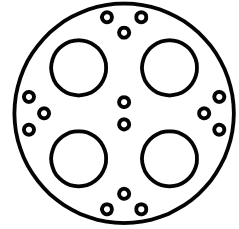
17-2 T/Q  
1 #8  
38 #22D



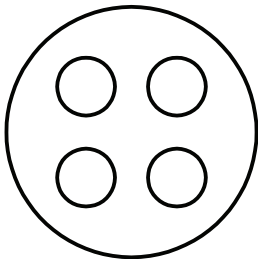
17-82 T/Q  
2 #8



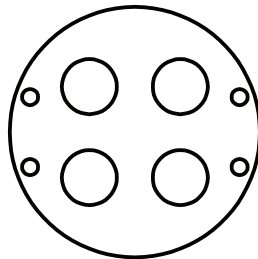
19-4 T/Q  
4 #8



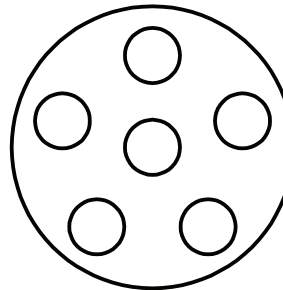
19-18 T/Q  
4 #8  
14 #22D



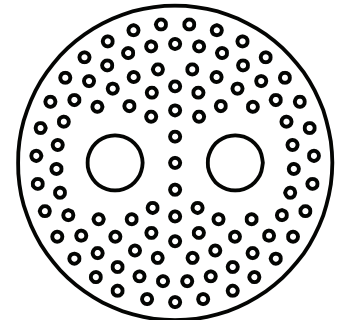
21-75 T/Q  
4 #8



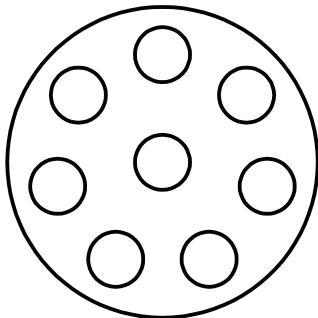
21-4T4 T/Q  
4 #8  
4 #22D



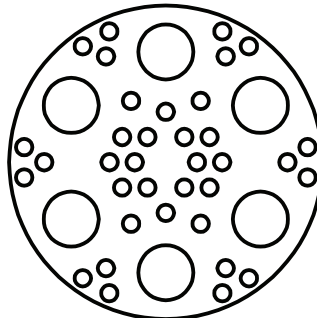
23-6 T/Q  
6 #8



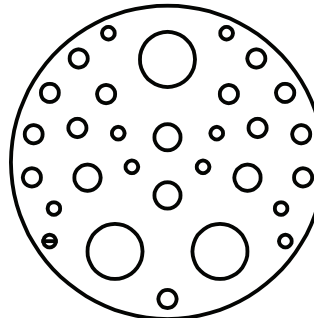
25-7 T/Q  
2 #8  
97 #22D



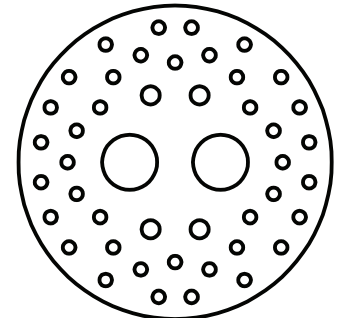
25-8 T/Q  
8 #8



25-17 T/Q  
6 #8  
36 #22D



25-20 T/Q  
3 #8 / 13 #16  
4 #12 / 10 #20



25-46 T/Q  
2 #8  
4 #16  
40 #20

**Note 1:** Size #8 Twinax/Quadrax (T/Q) Cavities are Anti-Rotational

**Note 2:** Size #8 Twinax/Quadrax contact cavities are common ground to the connector shell with a ground resistance of 10 milliohms maximum or insulated from common ground. Consult factory for details, please specify preference (common ground or insulated).

**Note 3:** Mixed signal and quad/twinax contacts are insulated from common ground. Consult factory for unique grounding and or filtering requirements.

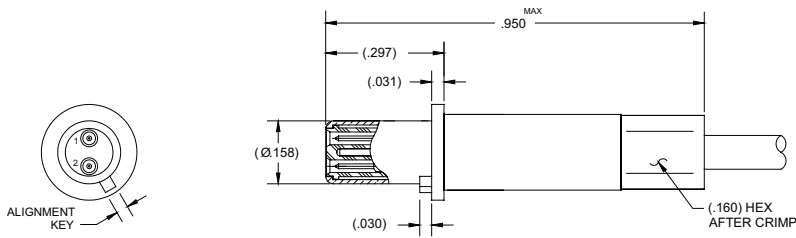
**Note 4:** Removable Size 8 Contacts use removal tool M81969/14-12



# High Speed Size 10 Contacts

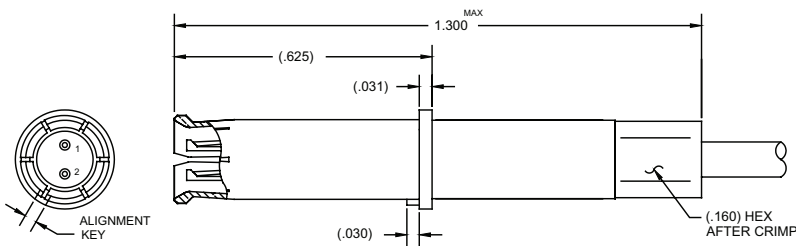
## Size 10 Twinax Contacts and Layout Arrangements

### Size 10 Twinax Pin Crimp Contact 100 Ohm



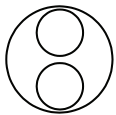
Part Number	Cable Type	Cable
018834-8001	Differential Twinax	540-1153-000

### Size 10 Twinax Socket Crimp Contact 100 Ohm

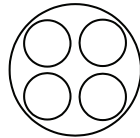


Part Number	Cable Type	Cable
018934-8001	Differential Twinax	540-1153-000

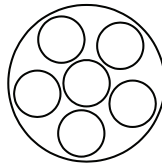
### Size 10XT Twinax Contact Layouts



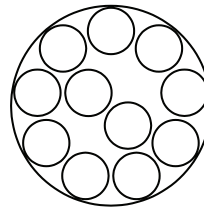
13-2 TX



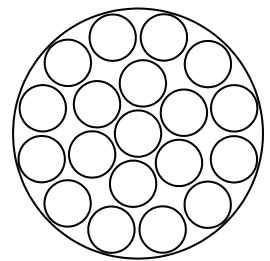
15-4 TX



17-6 TX



21-11 TX



25-19 TX

#### Notes:

- Arrangements are unique Sabritec layouts designed for MIL-DTL-38999 connector formats
- Twinax contact cavities are common ground to the connector shell
- Size 10 Twinax (TX) cavities are anti-rotational
- Removable Size 10 Twinax Contacts use removal tool M81969/14-05

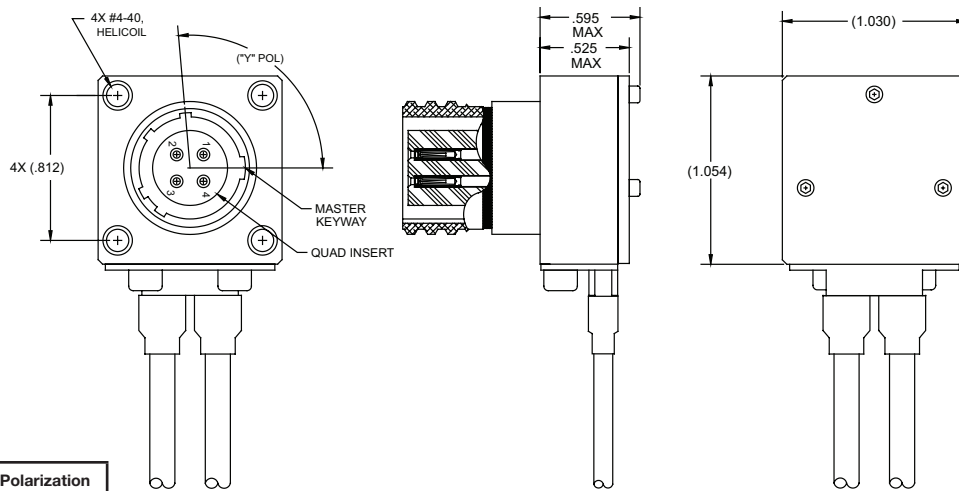




# Quadsplitter Connectors

## MIL-DTL-38999 Series III 150 Ohm Quad to Twinax

### Size 11 Quad Receptacle to 2 Socket Insert Right Angle Twinax Cables to Open Lead



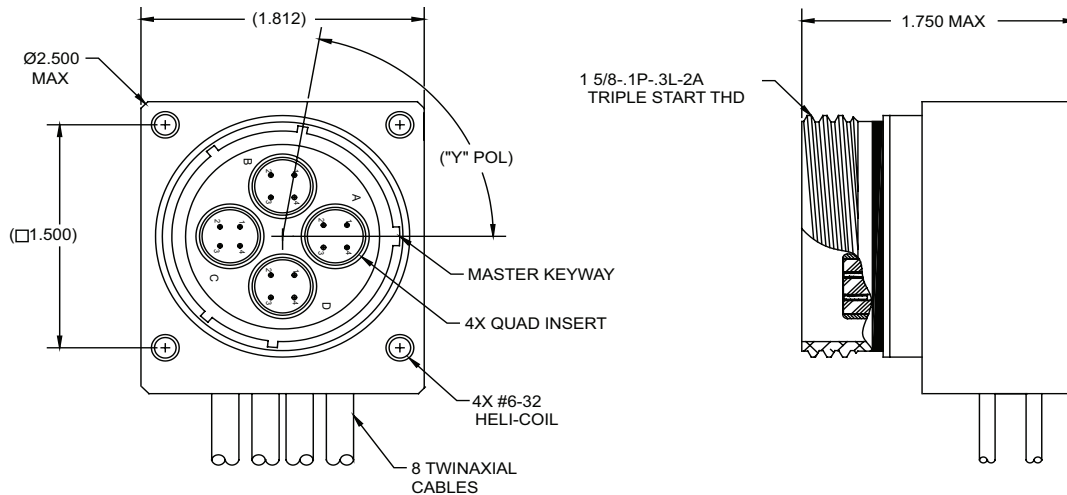
Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Part Number	Cable Type	Cable
02990Y-0100	Differential Twinax	540-1099-000

Y = Connector Polarization

Please specify cable length when ordering

### Size 25 Four Way Quad Pin Insert Receptacle to 8 Right Angle Twinax Cables to Open Lead



Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Part Number	Cable Type	Cable
01370Y-3000	Differential Twinax	540-1099-000

Y = Connector Polarization

Please specify cable length when ordering

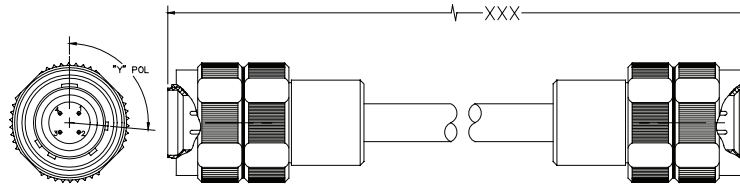


# MIL-DTL-38999 Quadrax Connectors

## MIL-DTL-38999/III Quad Insert Plug 150 Ohm

### MIL-DTL-38999 Size 11 Pin Insert Quad Plug to Plug Cable Assembly

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

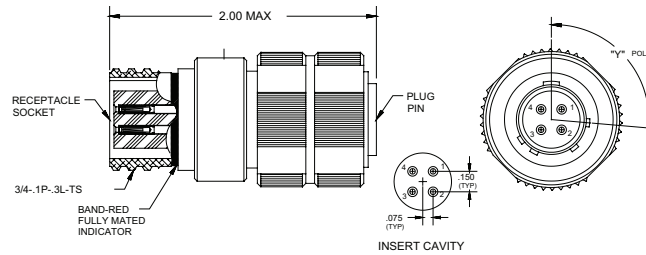


Y = Connector Polarization  
 XXX = Cable Length in Inches

Part Number	Cable Type	Cable
02990Y-2XXX	Differential Quad	540-1138-000
02990Y-3XXX	Differential Quad	540-1143-000

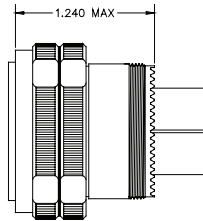
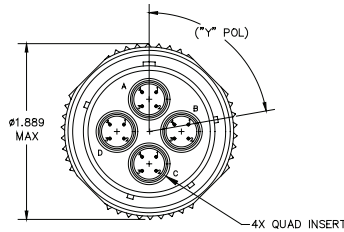
### MIL-DTL-38999 Size 11-4 Connector Saver Quad Configuration

Part Number	Polarization
013500-4100	N
013500-4101	A
013500-4102	B
013500-4103	C
013500-4104	D
013500-4105	E



### MIL-DTL-38999 Size 25 Four Way Socket Insert Quad Plug

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E



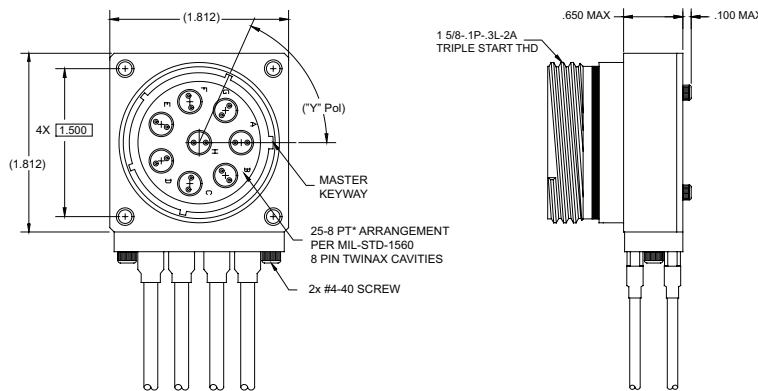
Part Number	Cable Type	Cable
01340Y-2000	Differential Quad	540-1138-000
01340Y-2001	Differential Quad	540-1143-000

Y = Connector Polarization

Please specify cable length when ordering

### Box Mount Receptacle Pin Insert 25-8 PT\* to 8 R/A Twinax Cables to Open Lead

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E



Part Number	Cable Type	Cable
02370Y-1XXX	Differential Twinax	540-1099-000

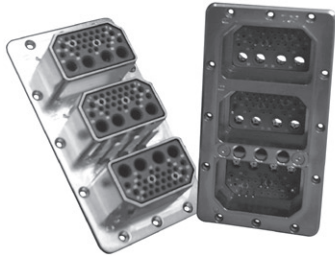
Y = Connector Polarization  
 XXX = Cable Length in Inches

Please specify cable length when ordering



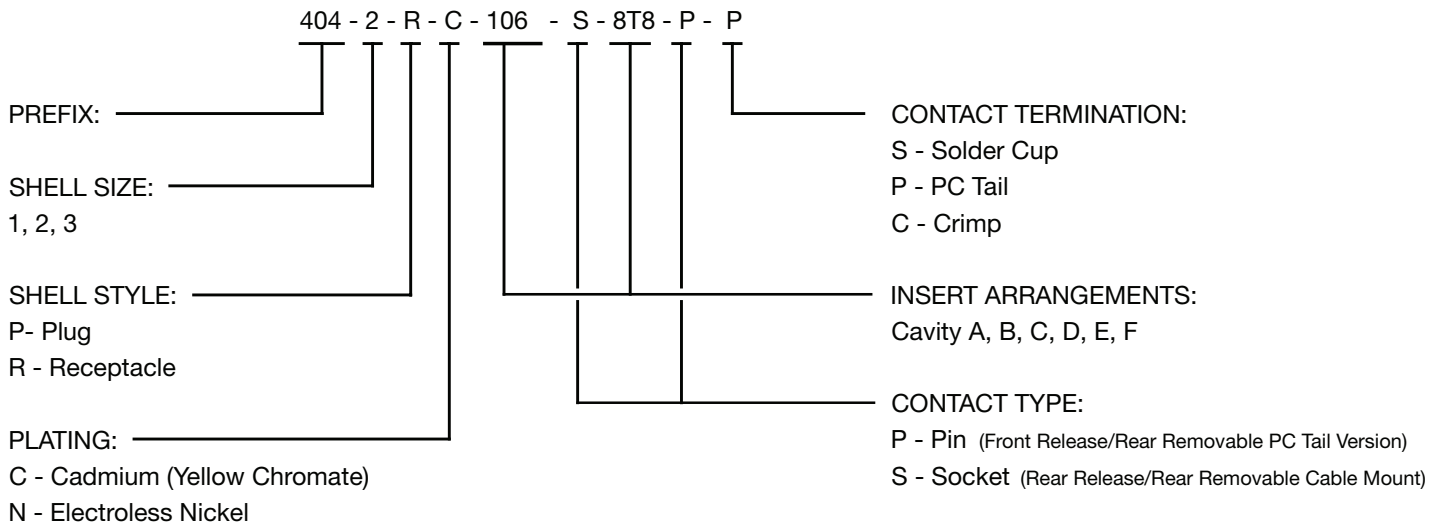
# ARINC 404 Series Connectors

## MIL-C-81659 Anti-Rotational Twinax Insert Arrangements

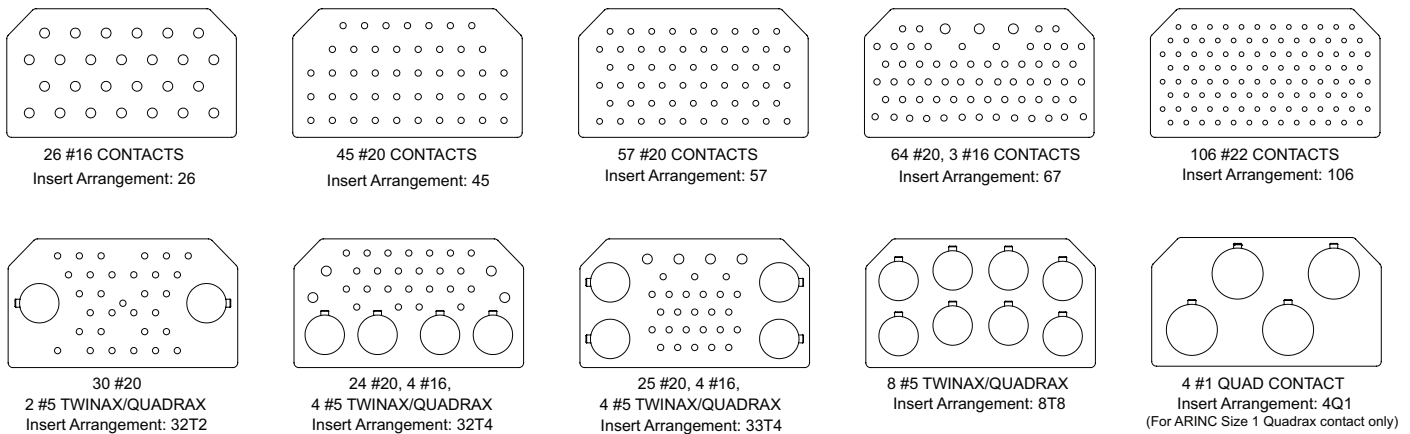


Sabritec's ARINC 404 connector series are available with high speed Fibre Channel and/or Ethernet Twinax and Quadrax contacts. These connectors come standard with anti-rotational keyed insert assemblies and high speed differential pair signaling. Designed for 1394 Firewire, Gigabit Ethernet, 100 Base-T Ethernet, high speed video Hot-Link, and Fibre Channel data links. Quadrax high speed Ethernet and matched impedance Fibre Channel 150 Ohm differential pair insert assemblies are also available.

### Part Number Description Code



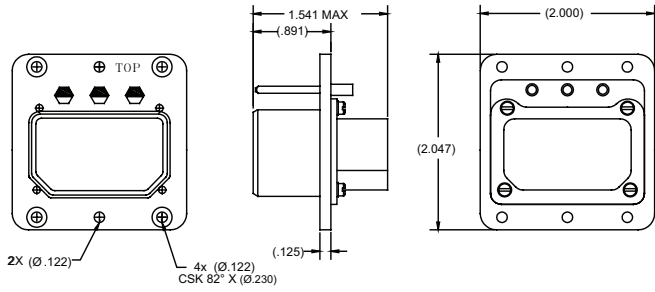
### ARINC 404 Insert Arrangements



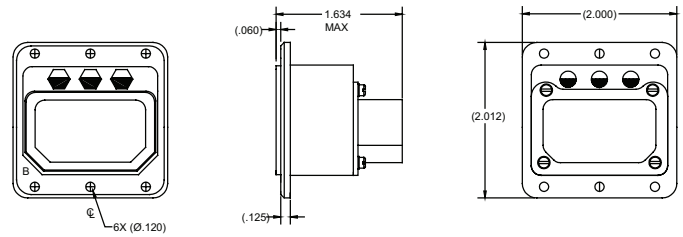
**Notes:**

- Size 5 Twinax and Quadrax Contact Cavities are anti-rotational
- Size 1 Quadrax Contact Cavities are anti-rotational

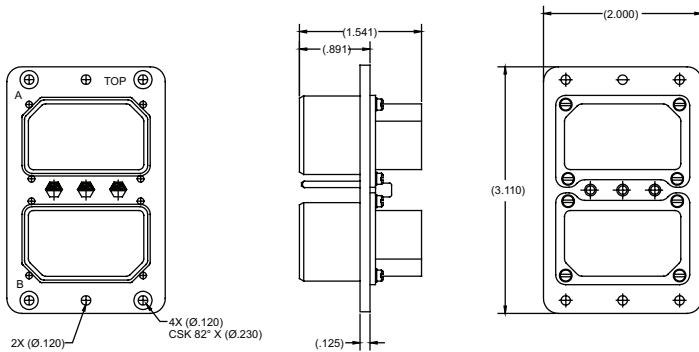
### Shell Size 1 Plug



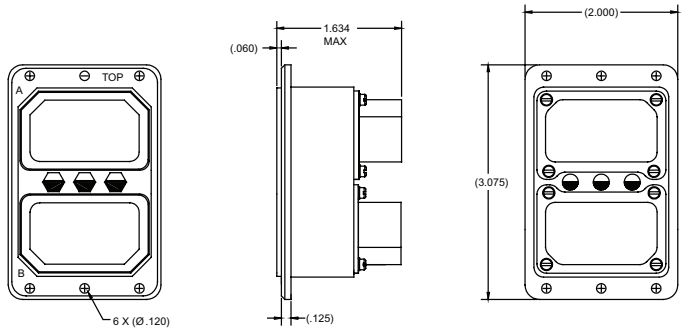
### Shell Size 1 Receptacle



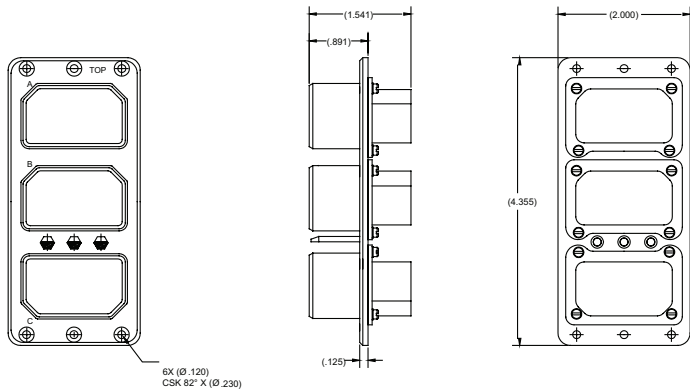
### Shell Size 2 Plug



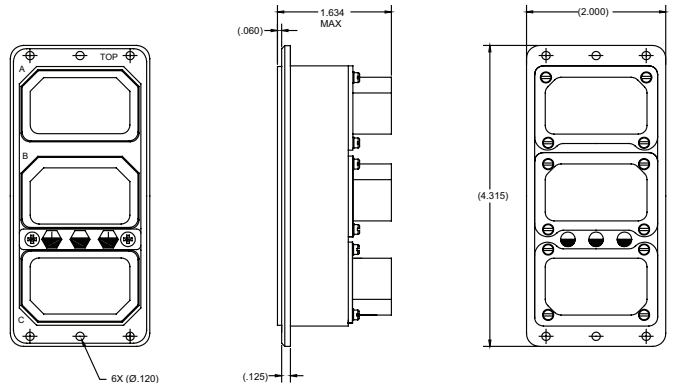
### Shell Size 2 Receptacle



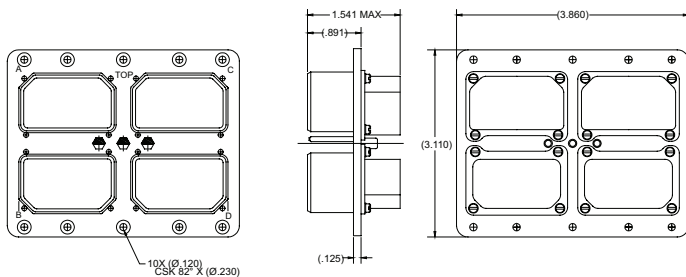
### Shell Size 3 Plug



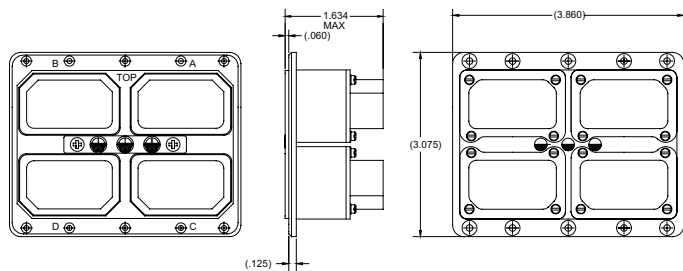
### Shell Size 3 Receptacle



### Shell Size 4 Plug



### Shell Size 4 Receptacle

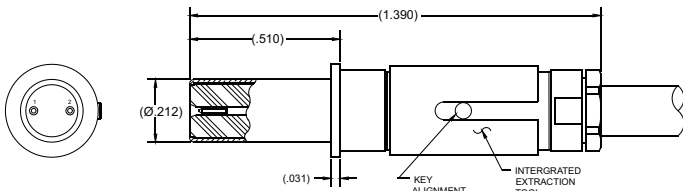




# ARINC 404 Series Contacts

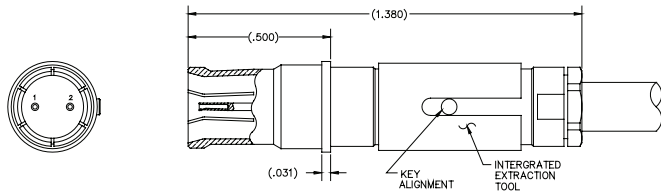
## Twinax and Quadrax Contacts

### ARINC 404 Size 5 Twinax Pin Contact 100 and 150 Ohm



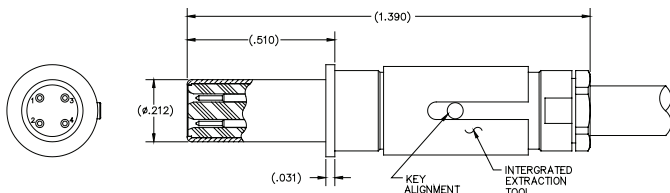
Part Number	Ohms	Cable Type	Cable
019434-8000	150	Differential Twinax	540-1099-000
019434-8001	150	Differential Twinax	540-1114-000
019434-8003	100	Flexible Twinax	540-1086-000
019434-8004	100	Differential Twinax	540-1153-000
019434-8005	100	Flexible Twinax	540-1161-000

### ARINC 404 Size 5 Twinax Socket Contact 100 and 150 Ohm



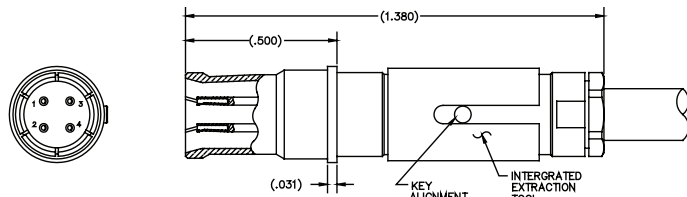
Part Number	Ohms	Cable Type	Cable
019334-8000	150	Differential Twinax	540-1099-000
019334-8001	150	Differential Twinax	540-1114-000
019334-8003	100	Flexible Twinax	540-1086-000
019334-8004	100	Differential Twinax	540-1153-000
019334-8005	100	Flexible Twinax	540-1161-000

### ARINC 404 Size 5 Quadrax Pin Contact 100 Ohm



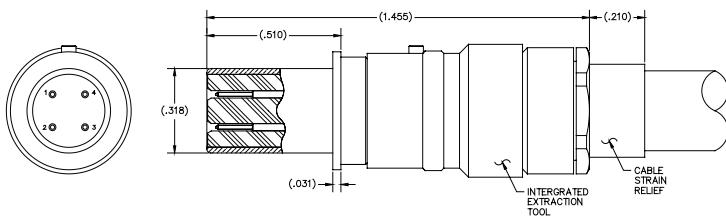
Part Number	Cable Type	Cable
019435-8000	Differential Quad	540-1165-000
019435-8002	Differential Quad	540-1183-000

### ARINC 404 Size 5 Quadrax Socket Contact 100 Ohm



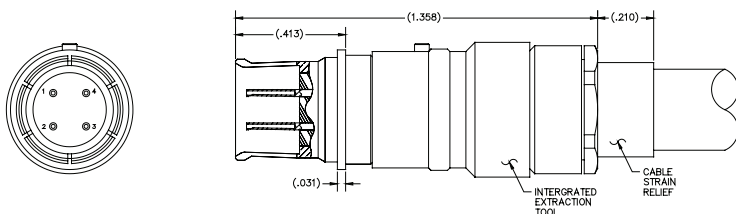
Part Number	Cable Type	Cable
019335-8000	Differential Quad	540-1165-000
019335-8001	Differential Quad	540-1183-000

### ARINC 404 Size 1 Quadrax Pin Contact 150 Ohm



Part Number	Cable Type	Cable
012735-0000	Differential Quad	540-1138-000

### ARINC 404 Size 1 Quadrax Socket Contact 150 Ohm



Part Number	Cable Type	Cable
012835-0000	Differential Quad	540-1138-000



# ARINC 600 Connectors

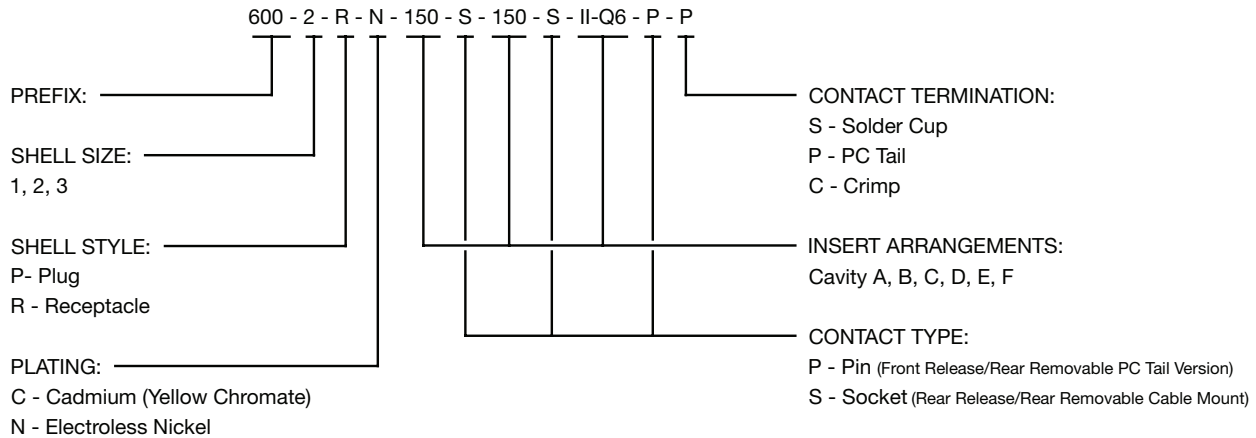
## Part Number Description Code and Insert Arrangements



Sabritec's ARINC 600 connector series is available with High Speed Ethernet insert assemblies. Designed for interconnect systems including 100 Base-T, Ethernet and high speed video Hot-Link. These connectors can be fitted with Ethernet based Quad 100 Ohm contacts or differential pair 100 Ohm or 150 Ohm matched impedance contacts.

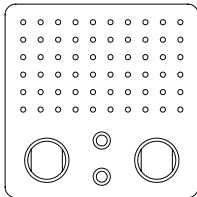
The ARINC 600 Series can also be routed with ruggedized expanded beam fiber optic contacts or concentric triaxial contacts designed for numerous low-loss twinaxial and concentric triax cables in a variety of impedance values.

### Part Number Description Code

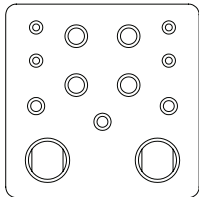


### Insert Arrangements

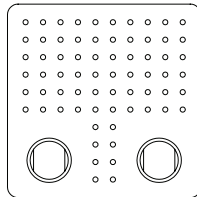
#### ARINC 600 Front Release/Front Removable Insert Layouts



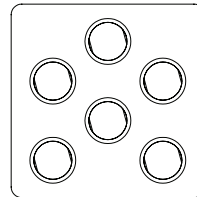
II - 62Q2  
60 SIZE 22  
2 SIZE 16  
2 SIZE 8



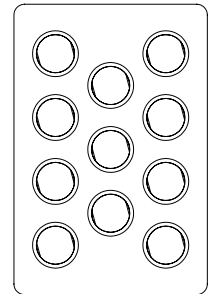
II - 11Q2  
4 SIZE 20  
3 SIZE 16  
4 SIZE 12  
2 SIZE 8



II - 68Q2  
68 SIZE 22  
2 SIZE 8

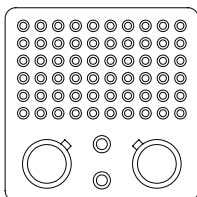


II - Q6  
6 SIZE 8  
METALLIC INSERT

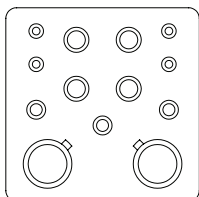


I - Q11  
11 SIZE 8  
METALLIC INSERT

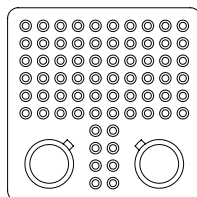
#### ARINC 600 Rear Release/Rear Removable Insert Layouts



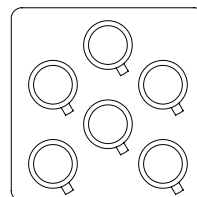
II - 62Q2  
60 SIZE 22  
2 SIZE 16  
2 SIZE 8



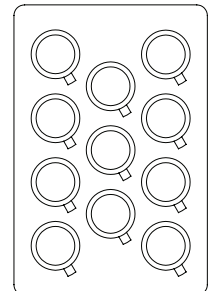
II - 11Q2  
4 SIZE 20  
3 SIZE 16  
4 SIZE 12  
2 SIZE 8



II - 68Q2  
68 SIZE 22  
2 SIZE 8



II - Q6  
6 SIZE 8  
METALLIC INSERT



I - Q11  
11 SIZE 8  
METALLIC INSERT

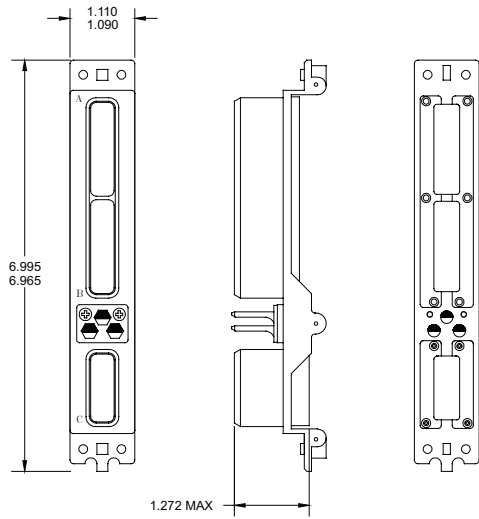
\* Removable Size 8 Twinax and Quadrx Contacts use removal tool M81969/14-06



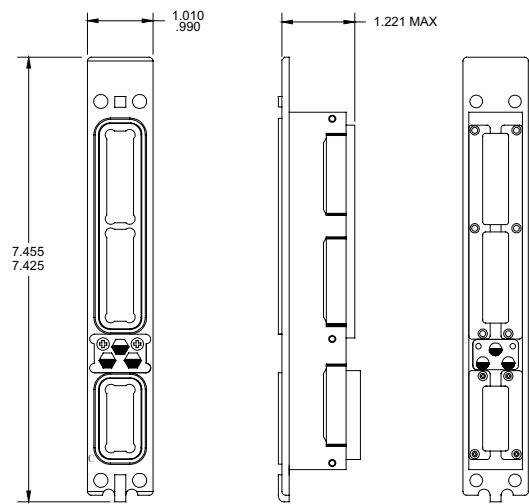
# ARINC 600 Shell Housing

## Shell Size 1 Rack and Panel Series

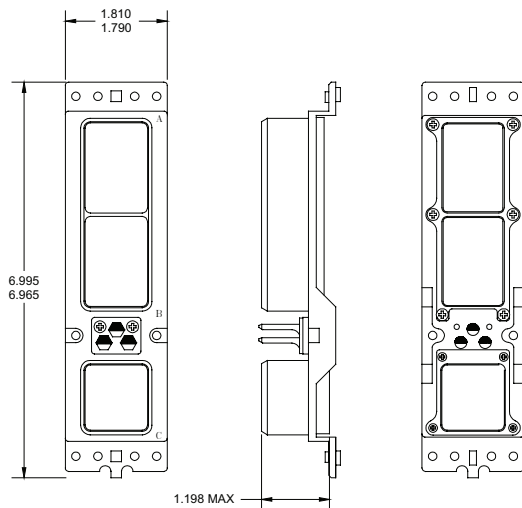
### ARINC 600 Shell Size 1 Plug



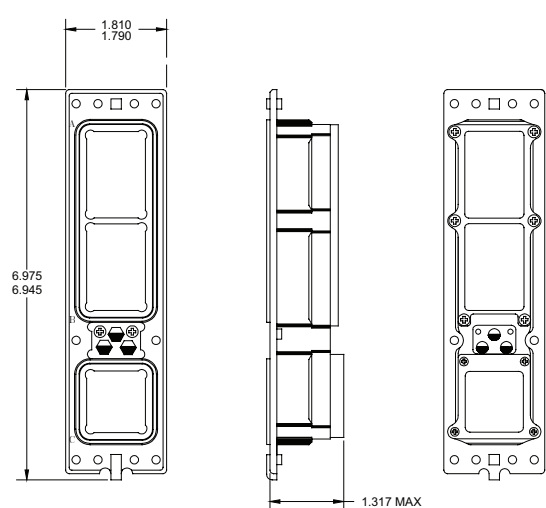
### ARINC 600 Shell Size 1 Receptacle



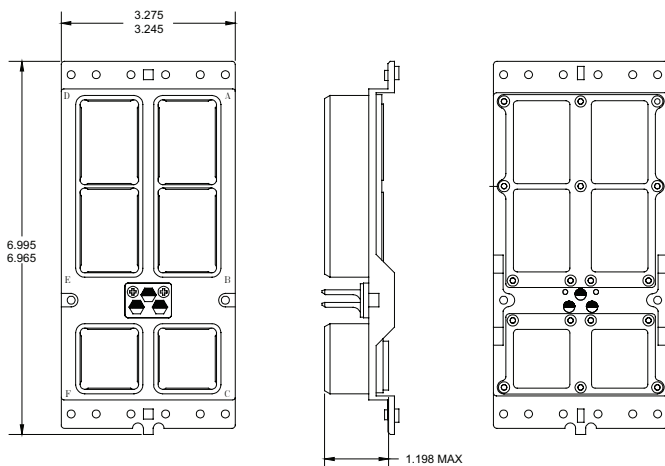
### ARINC 600 Shell Size 2 Plug



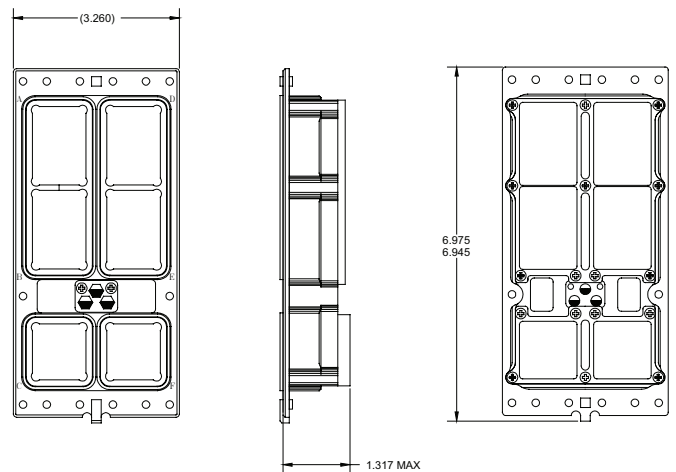
### ARINC 600 Shell Size 2 Receptacle



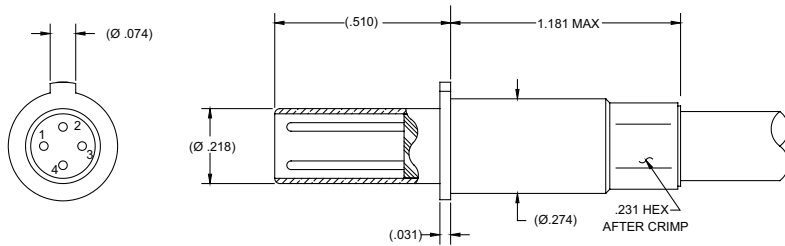
### ARINC 600 Shell Size 3 Plug



### ARINC 600 Shell Size 3 Receptacle



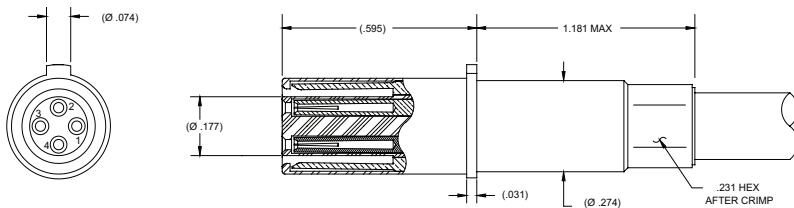
### Size 8 Pin Quadrax Contact 100 Ohm



Part Number	Cable Type	Cable
019635-2001	Differential Quad	540-1165-000
019635-2031	Differential Quad	540-1183-000

Rear Release/Rear Removable

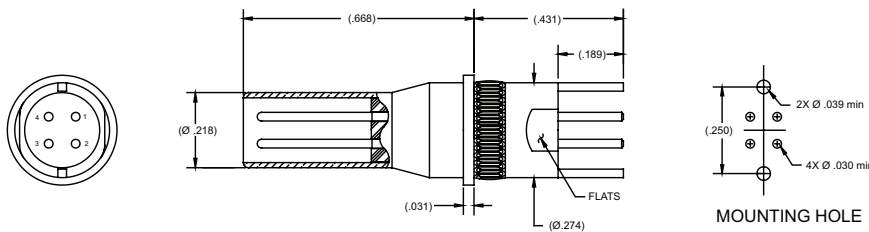
### Size 8 Socket Quadrax Contact 100 Ohm



Part Number	Cable Type	Cable
019535-2001	Differential Quad	540-1165-000
019535-2031	Differential Quad	540-1183-000

Rear Release/Rear Removable

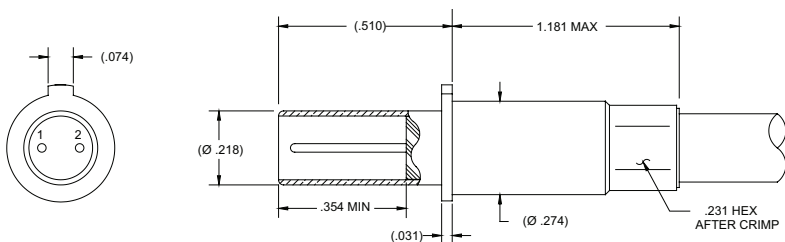
### Size 8 Pin Quadrax Contact PCB Mount 100 Ohm



**P/N 019617-2107**

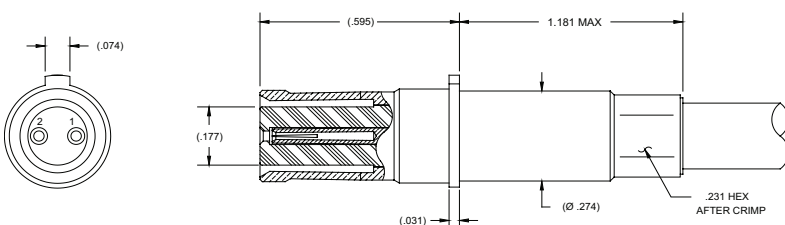
Front Release/Rear Removable

### Size 8 Twinax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019634-8025	Differential Twinax	540-1167-000
019634-8026	Differential Twinax	540-1161-000
019634-8027	Differential Twinax	540-1086-000

### Size 8 Twinax Socket Contact 100 Ohm



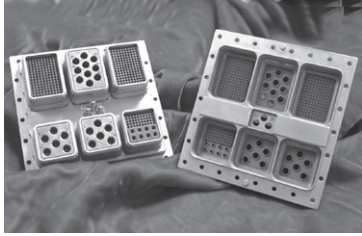
Part Number	Cable Type	Cable
019534-8025	Differential Twinax	540-1167-000
019534-8026	Differential Twinax	540-1161-000
019534-8027	Differential Twinax	540-1086-000





# MIL-DTL-83527 Series Connectors

## Part Number Assignment and Backshells



Sabritec's MIL-DTL-83527 Rack and Panel style connectors meet or exceed the applicable requirements of the military specification and come in a wide variety of insert arrangements and shell sizes. Contact patterns include mixed Signal, Power, Coax, Triax, Fiber Optic (ARINC 801 and Expanded Beam Contacts) Twinax and Quadrax contacts for standard or custom insert arrangements. They can also incorporate EMI filtering and transient EMP protection to help maintain signal integrity.

Twinax and Quadrax contacts are offered with crimp or solder termination with anti-rotational keyed insert assemblies for High-Speed Fibre Channel or Ethernet type applications. These connectors are designed for extreme environmental concerns including shock, vibration and humidity.

### Features:

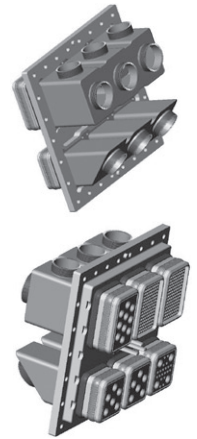
- Isolated cavities available for tempest applications
- EMI/RFI environmentally sealed backshells
- Single or Multiport exit termination points with standard MIL-DTL-38999 backshells.

### Backshells

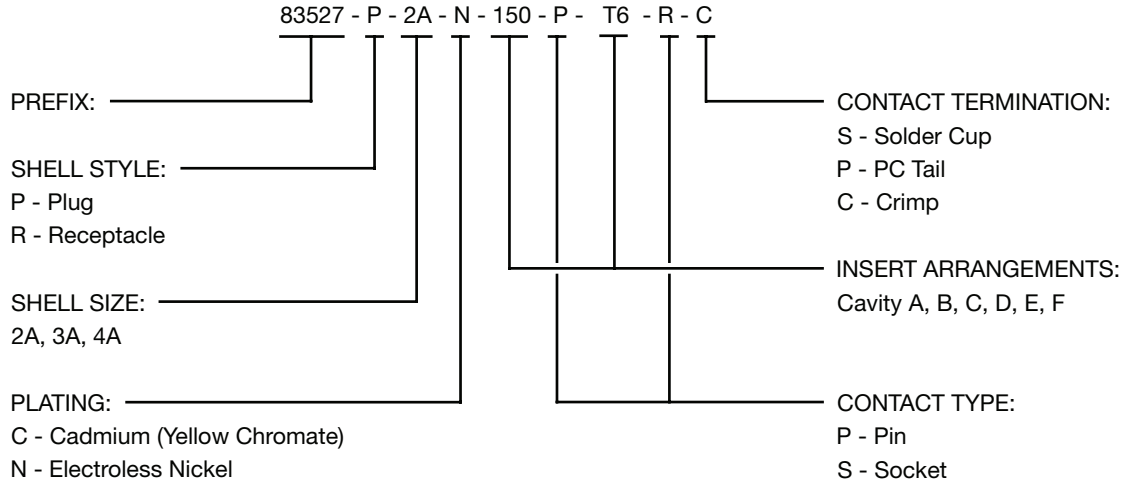
Sabritec's rugged EMI/RFI environmental backshells for MIL-DTL-83527 and ARINC 600 connectors offer many innovative features including accessory threads, optional cable entry locations as well as single or multi-cavity ports.

### Backshell Features:

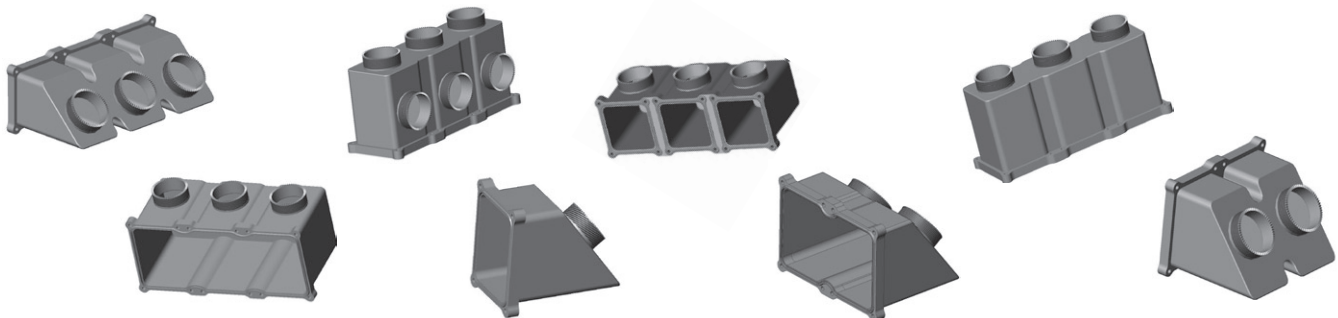
- EMI/RFI Environmentally sealed backshells
- Moisture, splash and dust proof
- Resilient gasket sealing from the rear of the connector shell to the backshell junction



## Part Number Description Code

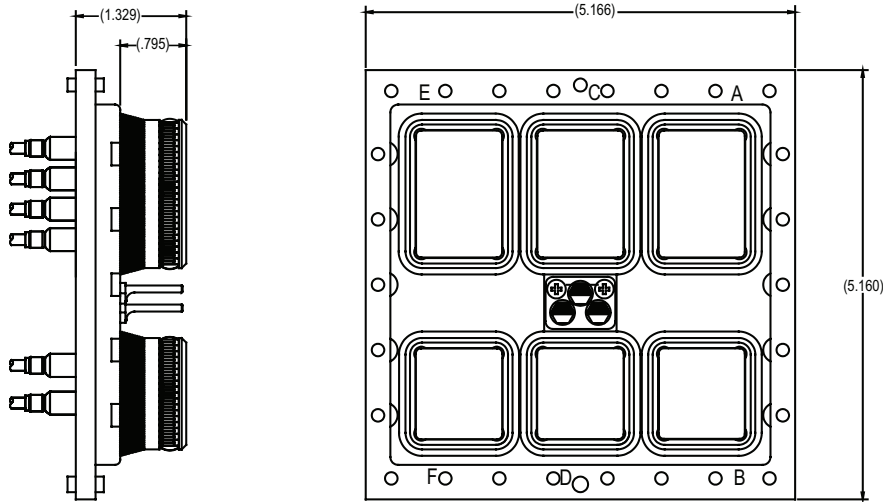


## Sample Backshells

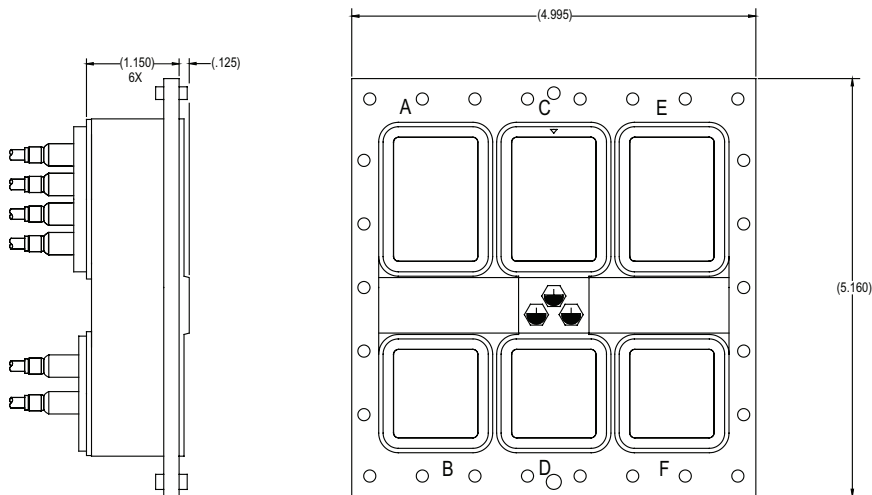


Consult factory for backshell ordering information

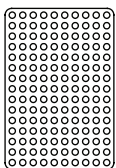
### MIL-DTL-83527 Shell Size 4A Plug



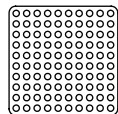
### MIL-DTL-83527 Shell Size 4A Receptacle



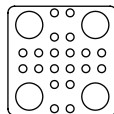
### Insert Arrangements



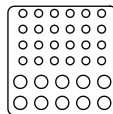
I-150  
150 #22



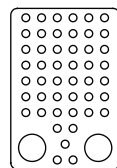
II-100  
100 #22



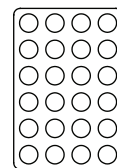
II-20T4  
20 #20  
4 #8 T/C



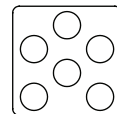
II-34  
24 #20  
10 #16



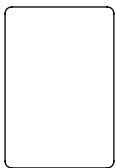
I-47T2  
47 #20  
2 #8 T/C



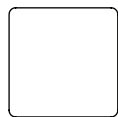
I-24  
24 #12



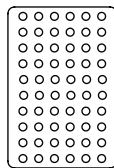
II-T6  
6 #8 T/C



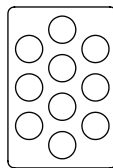
I-0  
BLANK  
CUSTOM



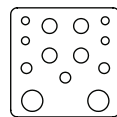
II-0  
BLANK  
CUSTOM



I-60  
60 #20



10P10  
10 #8 T/C



II-11C2  
4 #20  
3 #16  
4 #12  
2 #5

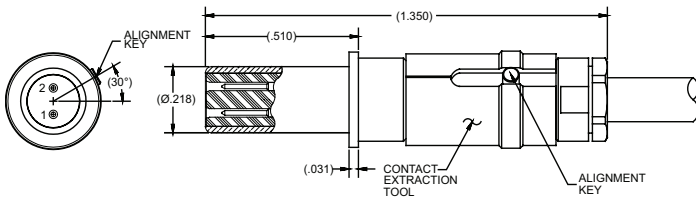
For Size 8 Contacts Please Specify:  
T = Twinax/Quadax Cavity (Anti-Rotational)  
C = Coaxial/Triaxial Cavity



# MIL-DTL-83527 Contacts

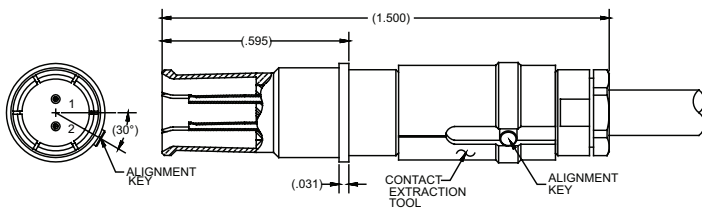
## Size 8 Quadrax & Twinax 100 & 150 Ohm Contacts

### Size 8 Twinax Pin Contact 100 and 150 Ohm



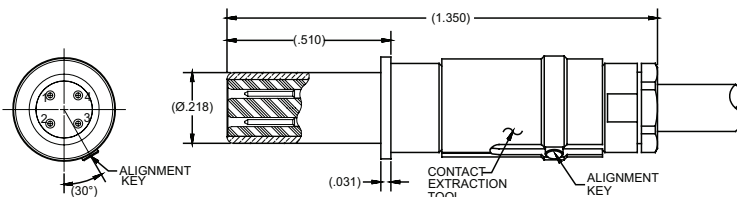
150 Ohm Matched Impedance		
Part Number	Cable Type	Cable
019634-0005	Differential Twinax	540-1099-000
019634-0006	Differential Twinax	540-1114-000
100 Ohm Matched Impedance		
019634-0007	Differential Twinax	540-1086-000
019634-0008	Flexible Twinax	540-1153-000
019634-0009	Flexible Twinax	540-1161-000

### Size 8 Twinax Socket Contact 100 and 150 Ohm



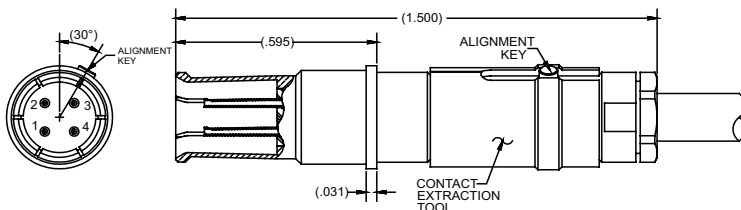
150 Ohm Matched Impedance		
Part Number	Cable Type	Cable
019534-0005	Differential Twinax	540-1099-000
019534-0006	Differential Twinax	540-1114-000
100 Ohm Matched Impedance		
019534-0007	Differential Twinax	540-1086-000
019534-0008	Flexible Twinax	540-1153-000
019534-0009	Flexible Twinax	540-1161-000

### Size 8 Quadrax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019635-0000	Differential Quad	540-1165-000

### Size 8 Quadrax Socket Contact 100 Ohm

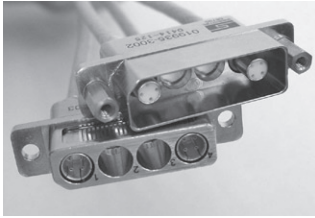


Part Number	Cable Type	Cable
019535-0000	Differential Quad	540-1165-000



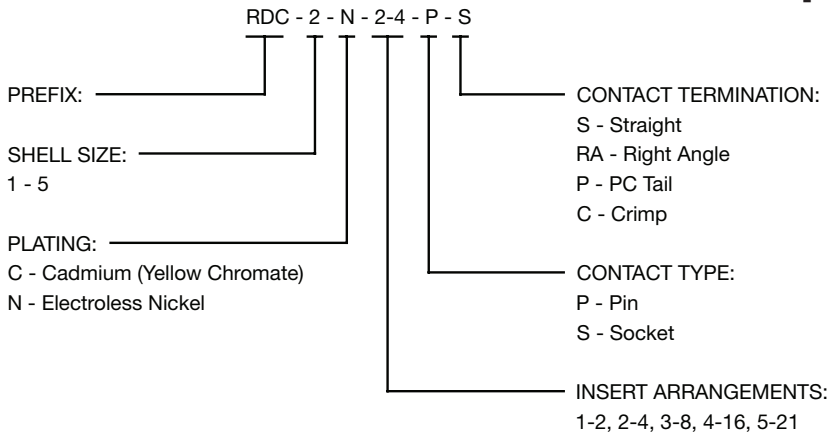
# Rugged D-Subminiature Connectors

## Rugged D-Sub Part Description and Insert Arrangements

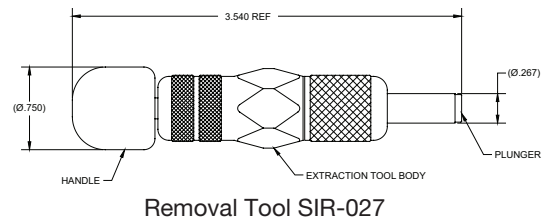


High impedance D-Sub connectors are designed to ground the outer shield of a twinax or quadrx contact directly to the shell of the connector. A multi-finger ground spring, fixed around the shell provides a multi-point contact engagement for superior EMI shielding. The result is an extremely low contact resistance when measured from the contact outer body to the connector flange. Sabritec connectors provide low RF noise and high durability of up to 1,000 mating cycles. These connectors meet or exceed all requirements of MIL-STD-202 for shock and vibration. Offered with 100 ohm quadrx and/or 100/150 ohm differential pair twinax contacts.

### Part Number Description Code

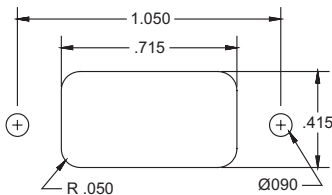
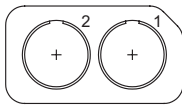


\* Removable Quad/Twinax Contacts Require Removal Tool SIR-027 (ordered separately)

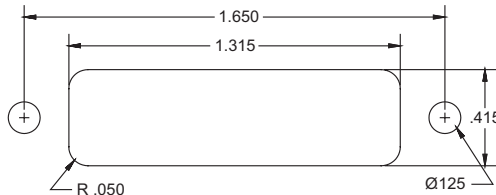
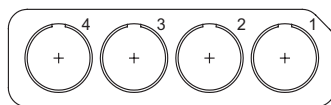


### Rugged D-Sub Connector Shells & Insert Arrangements

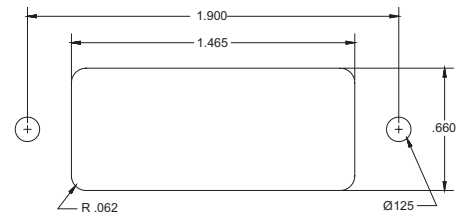
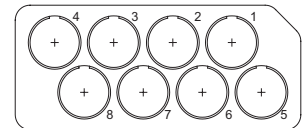
Shell Size 1  
Arrangement 1-2  
2 # 9 Quad/Twinax Contacts



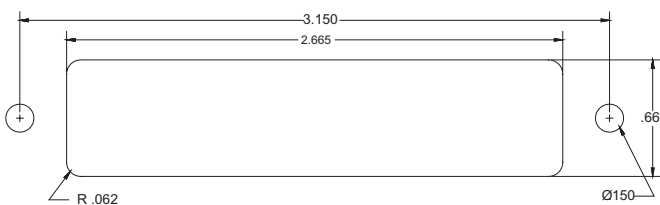
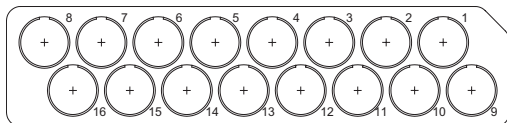
Shell Size 2  
Arrangement 2-4  
4 # 9 Quad/Twinax Contacts



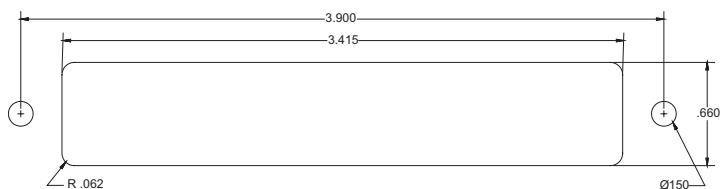
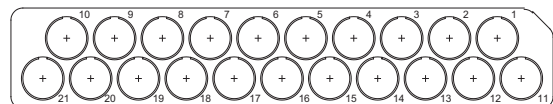
Shell Size 3  
Arrangement 3-8  
8 # 9 Quad/Twinax Contacts



Shell Size 4  
Arrangement 4-16  
16 # 9 Quad/Twinax Contacts



Shell Size 5  
Arrangement 5-21  
21 # 9 Quad/Twinax Contacts



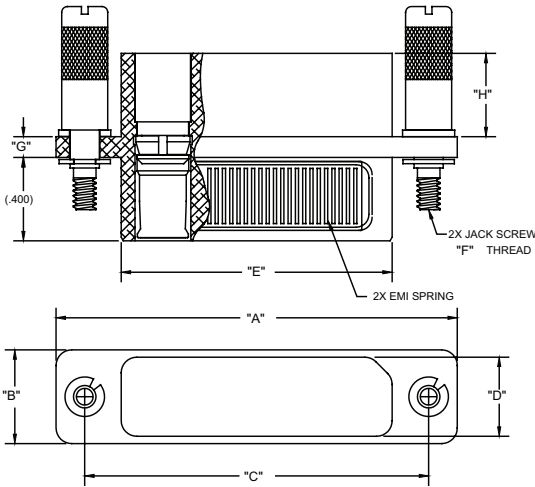
Please consult factory for environmentally sealed and backshell connectors.



# Rugged D-Subminiature Connectors

## Quadrax and Twinax Panel Mount D-Subminiature Connectors

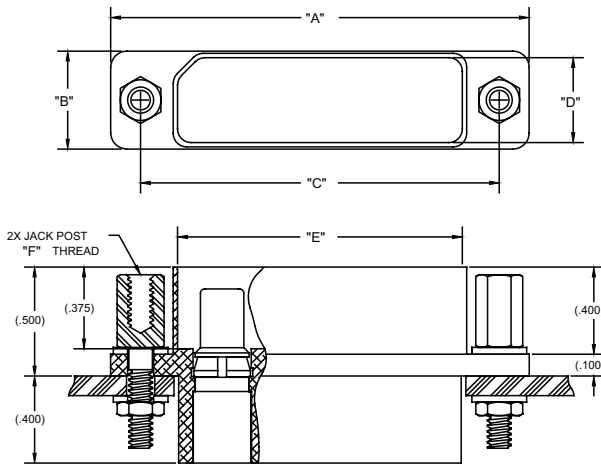
### Quad/Twinax D-Sub Plug



Part Number	Contacts	A	B	C	D	E	F	G	H
012700-2002	2	1.325	.450	1.050	.380	.700	#2-56	.100	.400
012700-2003	4	1.925	.450	1.650	.380	1.300	#4-40	.100	.400
012700-2004	8	2.300	.750	1.900	.625	1.450	#4-40	.100	.400
012700-2005	16	3.600	.750	3.150	.625	2.650	#6-32	.150	.350
012700-2006	21	4.350	.750	3.900	.625	3.400	#6-32	.150	.350

Contacts are sold separately

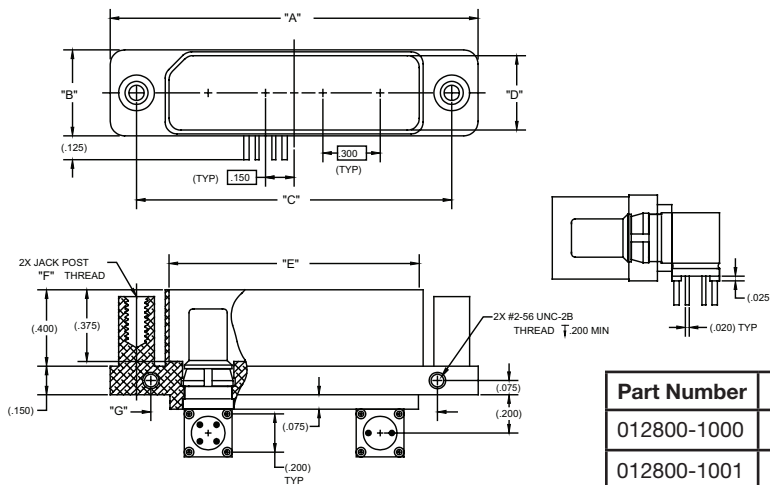
### Quad/Twinax D-Sub Receptacle Cable Mount



Part Number	Contacts	A	B	C	D	E	F
012800-3002	2	1.325	.450	1.050	.390	.710	#2-56
012800-3003	4	1.925	.450	1.650	.390	1.310	#4-40
012800-3004	8	2.300	.750	1.900	.635	1.460	#4-40
012800-3005	16	3.600	.750	3.150	.635	2.660	#6-32
012800-3006	21	4.350	.750	3.900	.635	3.410	#6-32

Contacts are sold separately

### Quad/Twinax D-Sub PC Tail Mount



Part Number	Contacts	A	B	C	D	E	F	G
012800-1000	2	1.325	.450	1.050	.390	.710	#2-56	.900
012800-1001	4	1.925	.450	1.650	.390	1.310	#4-40	1.500

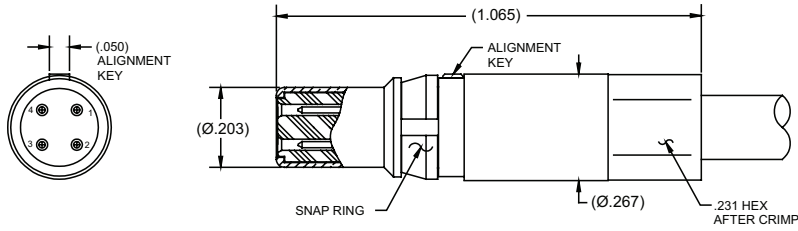
PC Tail Contacts included



# Rugged D-Sub Quadrax Contacts

## Size 9 Quadrax Contacts 100 Ohm

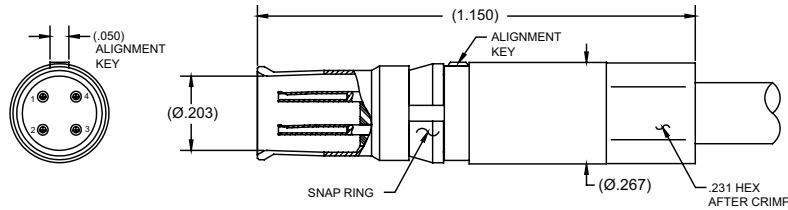
### Size 9 Quadrax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019235-8000	Differential Quad	540-1183-000

For use in P/N: 012800-3002 thru 3006

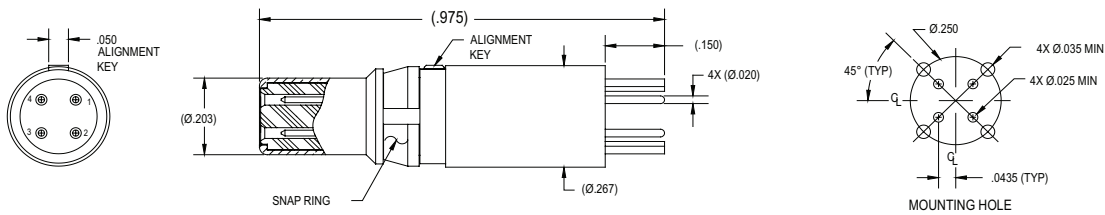
### Size 9 Quadrax Socket Contact 100 Ohm



Part Number	Cable Type	Cable
019135-8000	Differential Quad	540-1183-000

For use in P/N: 012700-2002 thru 2006

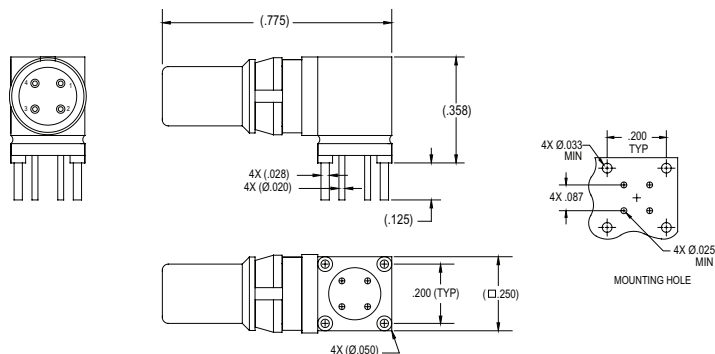
### Size 9 Quadrax Pin Contact PCB Mount 100 Ohm



**P/N: 019217-2006**

For use in P/N: 012800-3002 thru 3006

### Size 9 Right Angle PC Tail Quadrax Contact 100 Ohm



**P/N: 019217-1001**

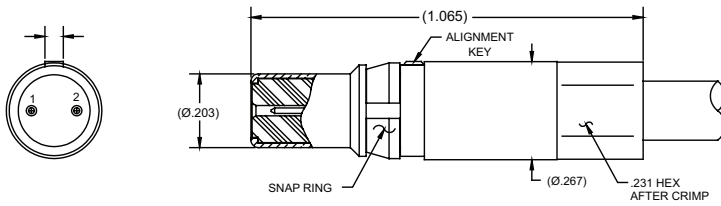
For use in P/N: 012800-1000 thru 1001



# Rugged D-Sub Twinax Contacts

## Size 9 Twinax Contacts 100 Ohm

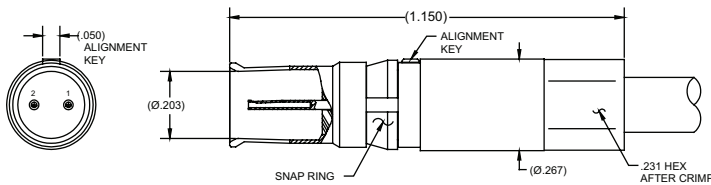
### Size 9 Twinax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019234-2002	Differential Twinax	540-1167-000
019234-2017	Flexible Twinax	540-1161-000
019234-2018	Flexible Twinax	540-1086-000

For use in P/N: 012800-3002 thru 3006

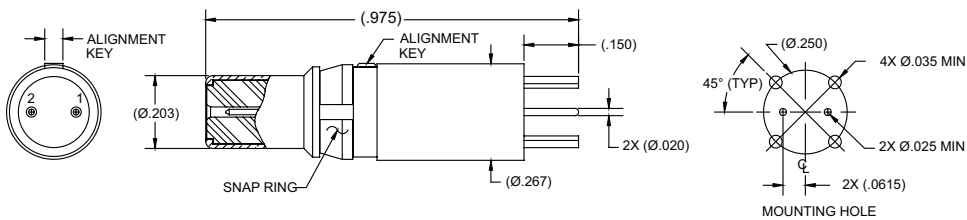
### Size 9 Twinax Socket Contact 100 Ohm



Part Number	Cable Type	Cable
019134-2002	Differential Twinax	540-1167-000
019134-2017	Flexible Twinax	540-1161-000
019134-2018	Flexible Twinax	540-1086-000

For use in P/N: 012700-2002 thru 2006

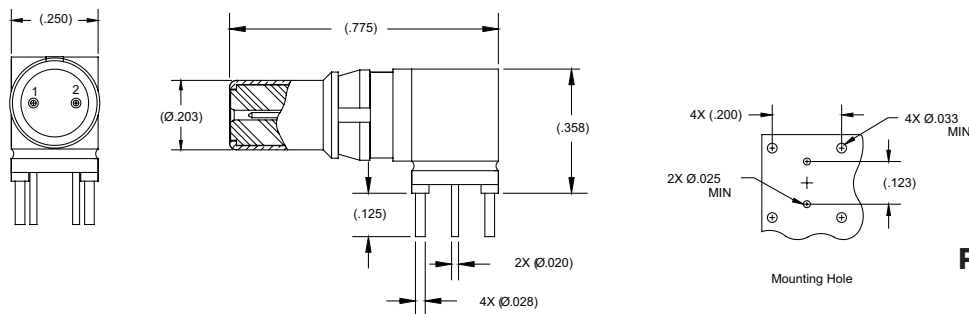
### Size 9 Twinax Pin Contact PCB Mount 100 Ohm



**P/N 019217-0000**

For use in P/N: 012800-3002 thru 3006

### Size 9 Right Angle PC Tail Twinax Contact 100 Ohm



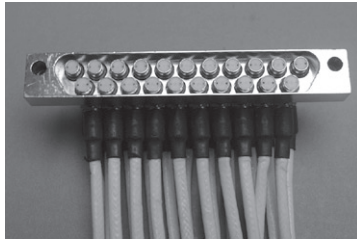
**P/N 019217-1000**

For use in P/N: 012800-1000 thru 1001



# High Speed Back Plane Connectors

## Twinax 21 Position Connectors 150 Ohm and 100 Ohm

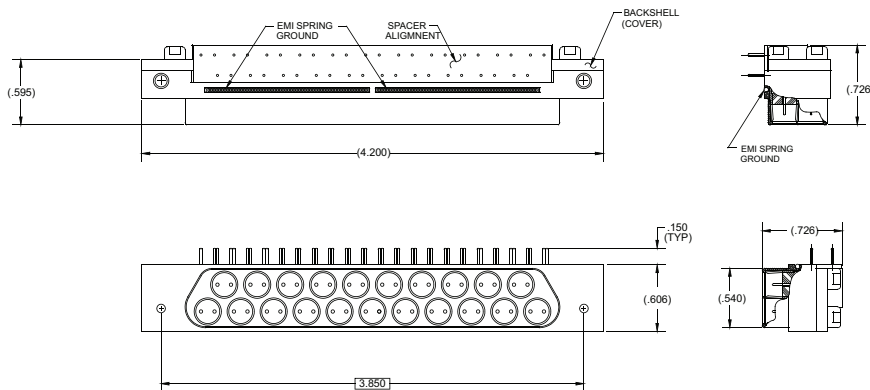


In standard VME cards for low data rate signaling, connectors are widely available to carry non-shielded signaling for the VME bus from the interface via motherboard to daughter card assembly designated as I/O plug-in modules. The industry standard defines these connectors typically as P1 and P3 connectors.

Sabritec has taken the standard housing configuration of the P1 & P3 mounting dimensions while incorporating true differential pair contacts within the P1 & P3 dimensional constraints. Data sampling rates exceeding 2 Gbits/second can be driven via matched impedance differential pair interconnections for board-to-board high speed data transfer as well as blind mate I/O plug in modular applications.

Sabritec's P1 connector housing contains 21 position true differential pair blind mate contacts allowing board designers to carry high density differential pair signals from the LRU via motherboard to daughter-card plug in modules with a single connector P1 type housing. This allows for the use of standard VME bus architecture cages for high speed fibre channel connection.

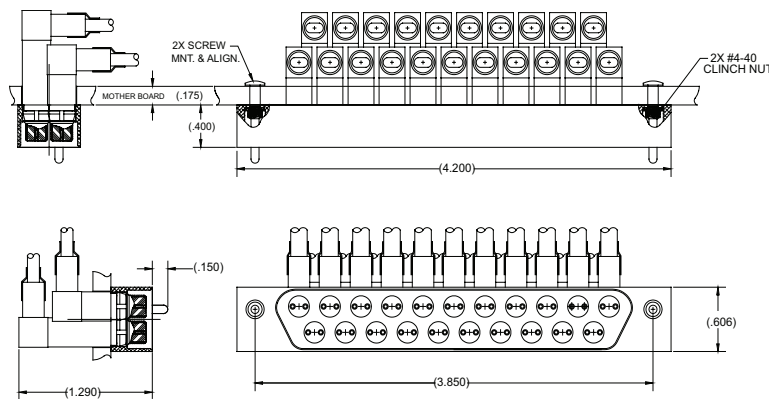
### Right Angle Twinax Receptacle 21 Position (Blind Mate PCB Interconnects) 150 Ohm



**P/N 029917-1015**

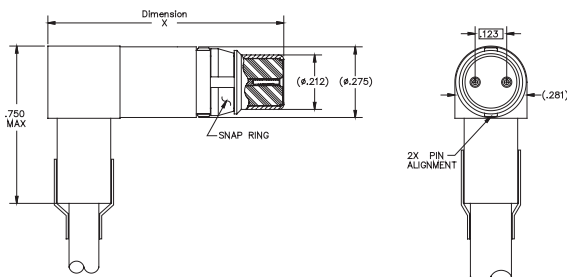
Mates with P/N: 029912-1015

### Right Angle Twinax Plug Housing 21 Position (Blind Mate PCB Interconnects) 150 Ohm



**P/N 029912-1015**

### Size 5 Right Angle Twinax Cable Pin Contact 150 Ohm



Part Number	Cable Type	Cable	Contacts	Dim X
019912-1103	Differential Twinax	540-1099-000	Near Row	0.905
019912-1305	Differential Twinax	540-1114-000	Near Row	0.905
019912-1102	Differential Twinax	540-1099-000	Far Row	1.230
019912-1304	Differential Twinax	540-1114-000	Far Row	1.230

For use in 029912-1015

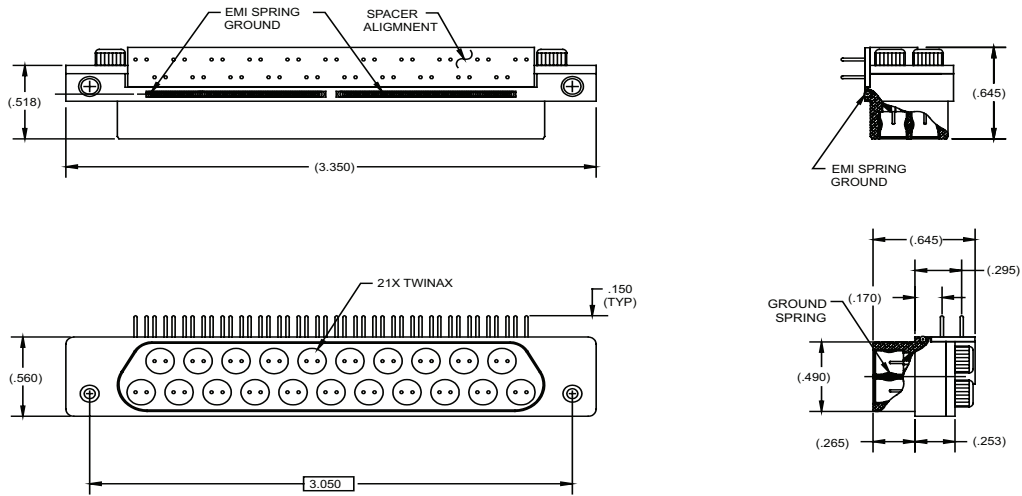




# High Speed Back Plane Connectors

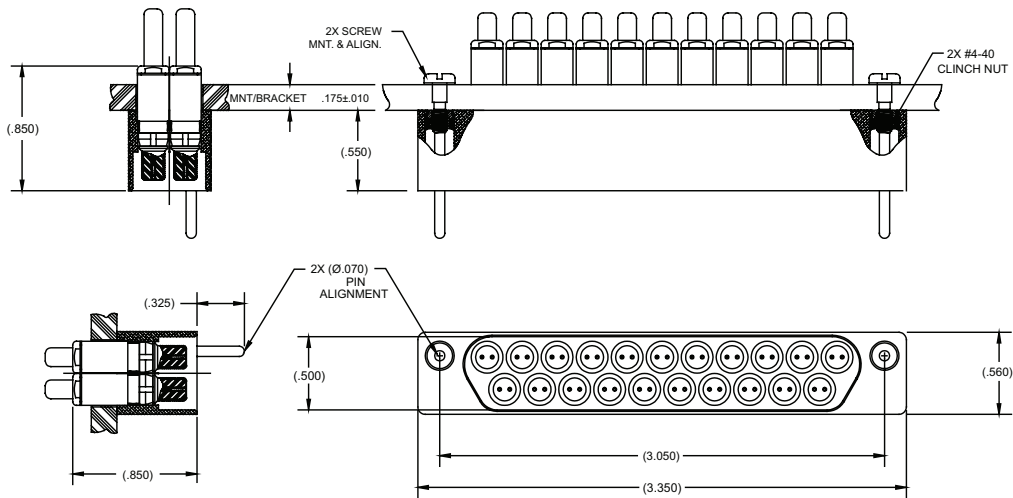
## Twinax 21 Position Connectors 100 Ohm Ethernet

### Right Angle Twinax Receptacle 21 Position (Blind Mate PCB Interconnects) 100 Ohm



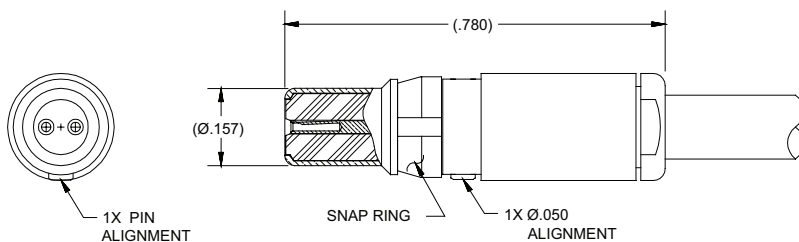
**P/N 010017-1000**

### Straight Twinax Plug Housing 21 Position (Blind Mate PCB Interconnects) 100 Ohm



**P/N 010034-0000**

### Size 10 Twinax Pin Contact 100 Ohm

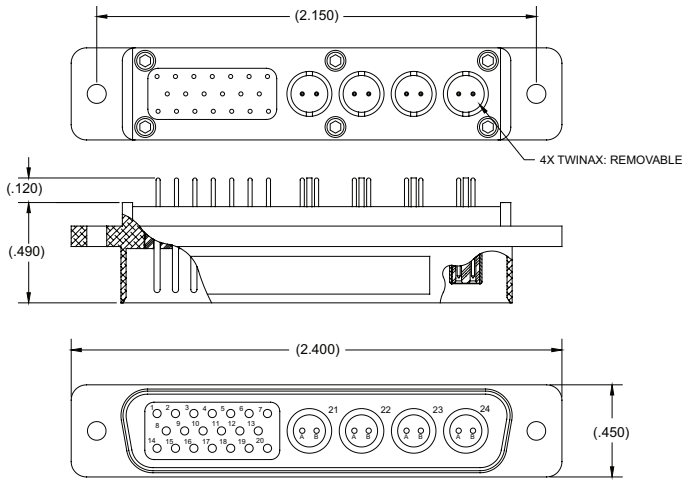


Part Number	Cable Type	Cable
018834-0000	Differential Twinax	540-1153-000
018834-0001	Flexible Twinax	540-1161-000

For use in 010034-0000

\* Removable Size 10 Twinax Contact uses removable tool SIR-017

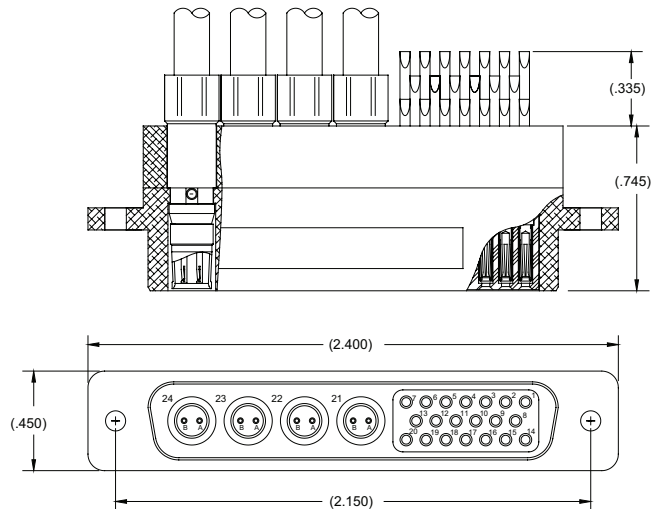
### Rugged D-Sub Twinax/Signal PC Tail Receptacle



**P/N 013317-3030**

4 #10 Twinax Contacts  
20 #22 Signal Contacts

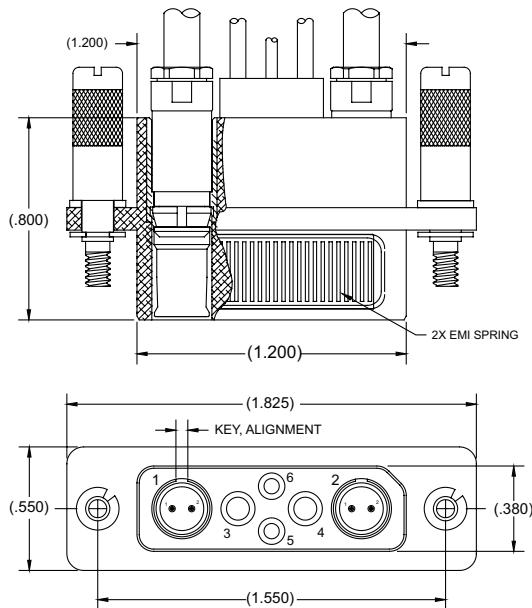
### Rugged D-Sub Twinax/Signal Plug



**P/N 013332-2012**

4 #10 Twinax Contacts  
20 #20 Signal Contacts

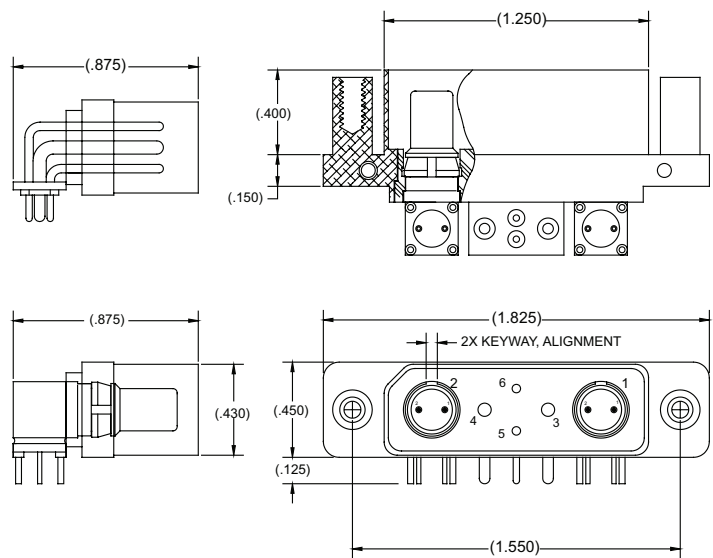
### Firewire 1394b Straight Twinax Plug With Jackposts



**P/N 012700-2007**

2 #9 Twinax Contacts  
2 #16 Power Contacts  
2 #20 Signal Contacts

### Firewire 1394b Right Angle Twinax Receptacle With Jackposts



**P/N 012800-1002**

2 #9 Twinax Contacts  
2 #16 Power Contacts  
2 #20 Signal Contacts

Please consult factory for environmentally sealed connectors and associated backshell accessories.

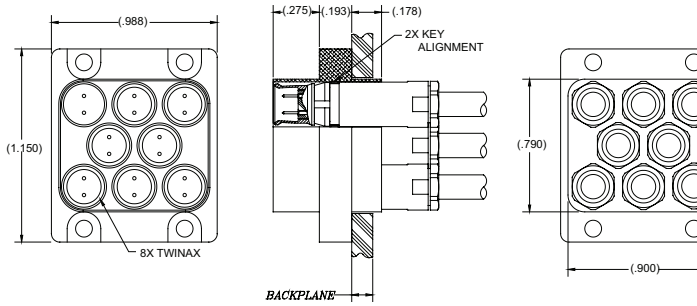


# High Speed Panel Mount Connectors

## Rectangular 8 Way Plug and Receptacle

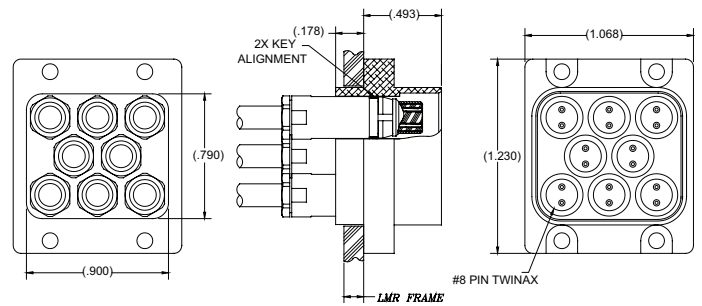
### Straight 8 Way Twinax with Removable Twinax Contacts

#### Plug



P/N 010034-2000

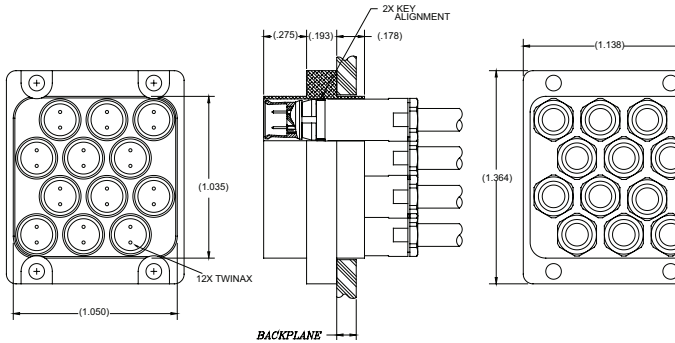
#### Receptacle



P/N 010034-3000

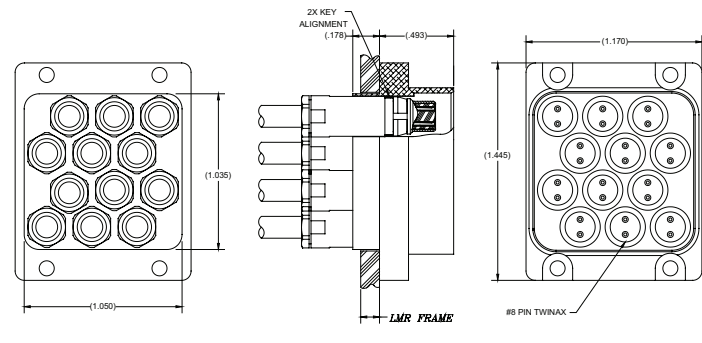
### Straight 12 Way Twinax with Removable Twinax Contacts

#### Plug



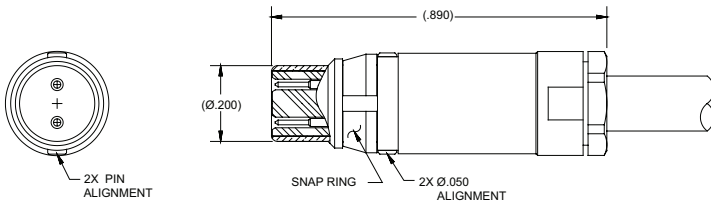
P/N 010034-2001

#### Receptacle



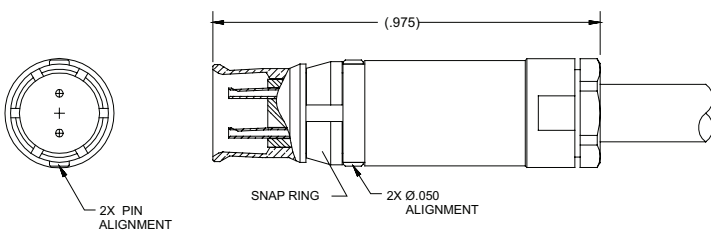
P/N 010034-3001

### Size 8 Twinax Pin Contact 100 and 150 Ohm



Part Number	Ohms	Cable Type	Cable
019634-0001	100	Differential Twinax	540-1153-000
019634-0002	100	Flexible Twinax	540-1161-000
019634-0003	100	Flexible Twinax	540-1086-000
019634-0004	150	Differential Twinax	540-1099-000

### Size 8 Twinax Socket Contact 100 and 150 Ohm



Part Number	Ohms	Cable Type	Cable
019534-0001	100	Differential Twinax	540-1153-000
019534-0002	100	Flexible Twinax	540-1161-000
019534-0003	100	Flexible Twinax	540-1086-000
019534-0004	150	Differential Twinax	540-1099-000



# Micro Quadrax and Twinax Connectors

## Micro Quadrax Connectors

Micro quadrax connectors are designed for differential pair matched impedance applications utilizing quadrax cable consisting of four wires where the diagonal pair of conductors forms a differential twinax pair. These connectors have a low impedance ground shield and are ideal for Ethernet (100 and 1000 Base-T), IEEE 1394 Firewire, USB, DVI and Infiniband applications with 100 Ohm differential impedance.

The micro quadrax connectors maintain the signal to shield impedance throughout the mated connector pair (quad configuration applications exceeding 1 Gbit/sec) and are available in threaded versions including straight and right angle cable mount and PCB mount configurations.

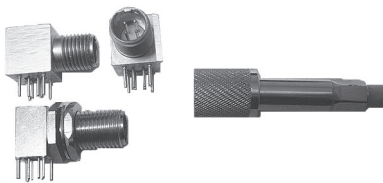
## Micro Twinax Connectors

The Micro Twinax line features matched impedance miniaturized connectors that provide the user with controlled impedance and tightly spaced PCB footprint spacing. These connectors are available in true differential twinax packages with NDL, SMA, and Micro D size constraints. These connectors are applicable for High-Speed Ethernet (100 and 1000 Base-T), Fibre Channel (>1 GBit/sec), IEEE 1394 Firewire, USB, DVI and Infiniband applications with 100 or 150 Ohm differential pair impedance.

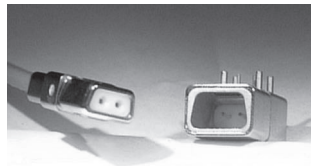
The NDL Micro Twinax Series is offered in threaded and quick disconnect styles and are 25% smaller in diameter than SMA coaxial connectors. The quick disconnect version has a diameter of .250" max and the threaded version has .250" Hex coupling nut. These connectors replace the standard NDL Triax series for higher speed balanced Twinax applications.

Mechanical & Environmental Specifications	
Temperature Rating	-55°C to + 125°C
Corrosion	MIL-STD-202 Method 101 Test Condition B
Shock	MIL-STD-202 Method 213 Test Condition B
Vibration	MIL-STD-202 Method 204 Test Condition B
Thermal Shock	MIL-STD-202 Method 107 Test Condition B
Durability	500 Mate/Unmate cycles min.
Coupling Nut Torque (threaded) Recommended	2.3 in-lbs min.
Mating Torque (threaded)	2.5 in-lbs
Engagement/Disengagement Force (Quick Disconnect)	3 lbs max/3 to 5 lbs
Electrical Specifications	
Dielectric Withstanding Voltage	250 VDC max
Insulation Resistance	5,000 Mega-Ohms min.
Contact Current Rating	3.0 Amps D.C. max.
Data Rates	Exceeding 2 Gbits/sec
Differential Pair Cable Impedance	150 Ohm ± 15 Ohm 100 Ohm ± 10 Ohms
Signal to Shield Cable Impedance	75 Ohm ± 10 Ohm 50 Ohm ± 7 Ohms
Material & Finishes	
Body	Brass per ASTM-B16, BeCu per ASTM-B196 Nickel per SAE-AMS-QQ-N-290 Gold per ASTM-B488
Insulators	PTFE per ASTM-D1710 Ultem per ASTM-D5205
Contacts	BeCu per ASTM-B196 Gold per ASTM-B488

All specifications subject to change without notice.



Micro Quadrax



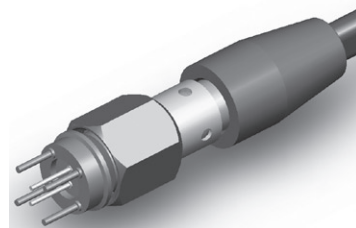
Twinax Micro-D Size



Twinax NDL Threaded and Quick Disconnect



Micro Twinax NDL Quick Disconnect



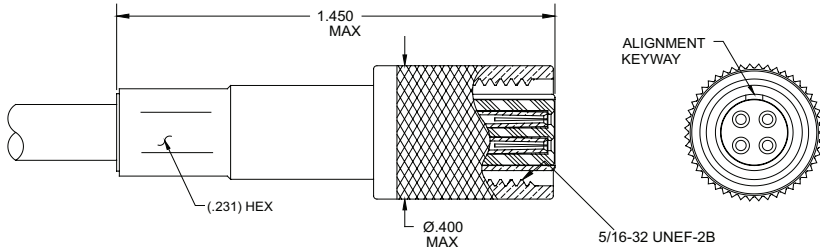
Micro Twinax NDL Threaded



# Micro Quadrax Connectors

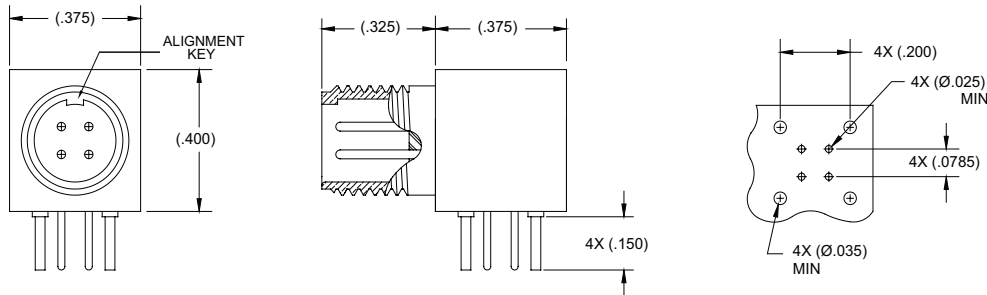
## 100 Ohm Quadrax Connectors

### Micro Quadrax Plug 100 Ohm



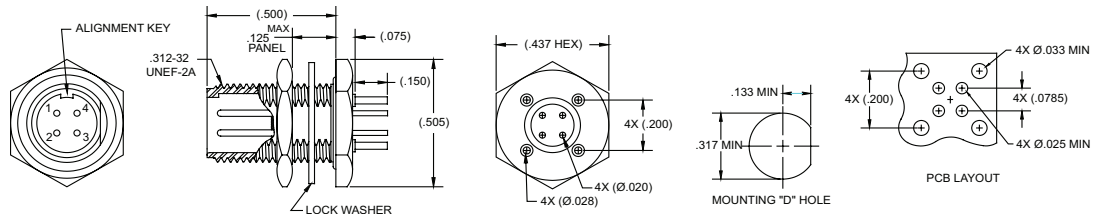
Part Number	Cable Type	Cable
012735-2013	Differential Quad	540-1183-000

### Micro Quadrax Right Angle PCB Mount Receptacle 100 Ohm



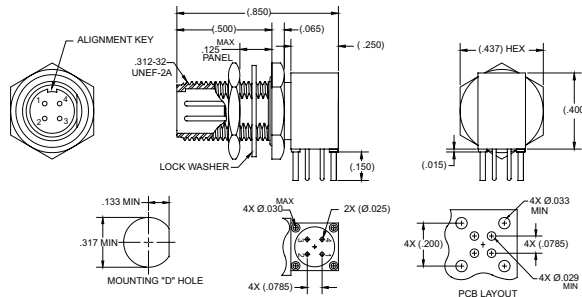
**P/N 012817-1000**

### Micro Quadrax Straight Bulkhead Mount PCB Jack



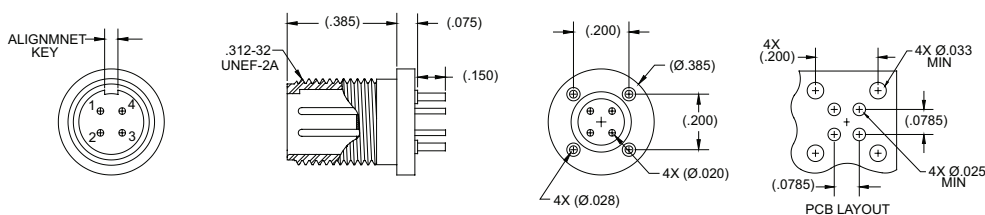
**P/N 012817-5001**

### Micro Quadrax Right Angle Bulkhead Mount PCB Jack



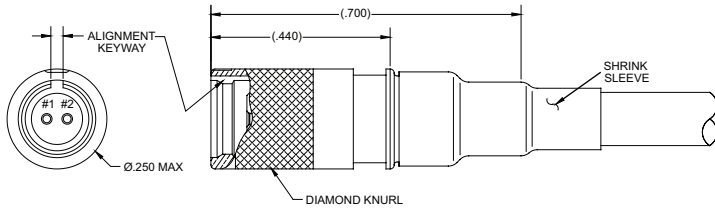
**P/N 012817-5003**

### Micro Quadrax Straight PCB Jack



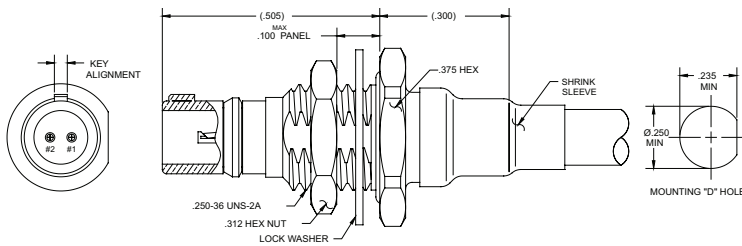
**P/N 012817-2000**

### Quick Disconnect Micro Twinax NDL Plug 100 and 150 Ohm



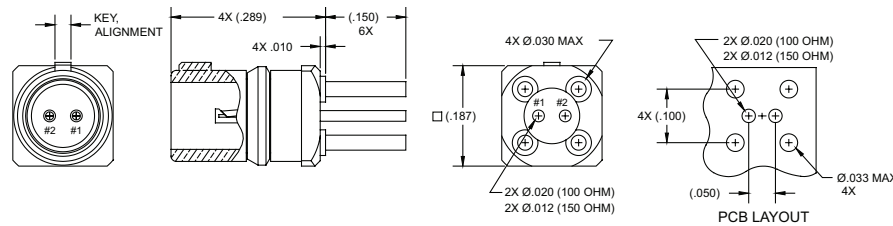
Part Number	Ohms	Cable Type	Cable
014034-2049	100	Differential Twinax	540-1153-000
014034-2050	100	Flexible Twinax	540-1161-000
014034-2051	100	Differential Twinax	540-1167-000
014034-2052	150	Flexible Twinax	540-1099-000

### Quick Disconnect Micro Twinax NDL Bulkhead Mount Jack 100 and 150 Ohm



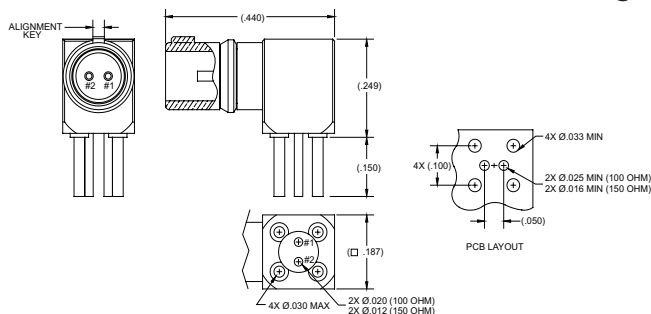
Part Number	Ohms	Cable Type	Cable
014134-5023	100	Differential Twinax	540-1153-000
014134-5024	100	Flexible Twinax	540-1161-000
014134-5025	100	Differential Twinax	540-1167-000
014134-5026	150	Flexible Twinax	540-1099-000

### Quick Disconnect Micro Twinax NDL Jack Straight PCB Mount 100 and 150 Ohm



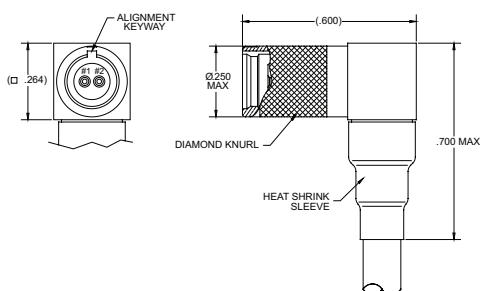
Part Number	Impedance
014117-2023	100 Ohms
014117-2024	150 Ohms

### Quick Disconnect Micro Twinax NDL Right Angle PCB Mount 100 and 150 Ohm



Part Number	Impedance
014117-1037	100 Ohms
014117-1038	150 Ohms

### Quick Disconnect Micro Twinax NDL Right Angle Plug 100 and 150 Ohm



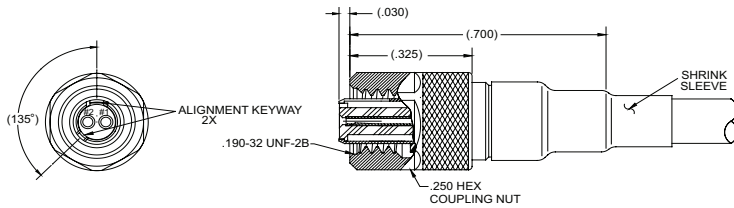
Part Number	Ohms	Cable Type	Cable
014034-1027	100	Differential Twinax	540-1153-000
014034-1028	100	Flexible Twinax	540-1161-000
014034-1029	100	Differential Twinax	540-1167-000
014034-1030	159	Flexible Twinax	540-1099-000



# Micro Twinax Connectors

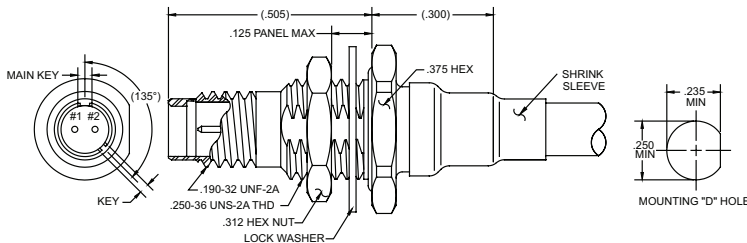
## Threaded NDL Size Package

### Threaded Micro Twinax NDL Straight Cable Plug 100 and 150 Ohm



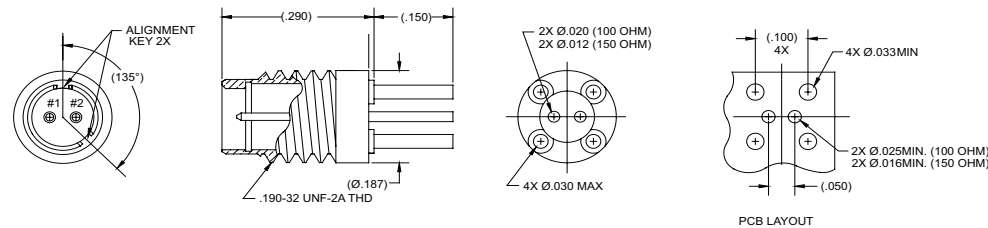
Part Number	Ohms	Cable Type	Cable
014034-2045	100	Differential Twinax	540-1153-000
014034-2046	100	Flexible Twinax	540-1161-000
014304-2047	100	Differential Twinax	540-1167-000
014034-2048	150	Differential Twinax	540-1099-000

### Threaded Micro Twinax NDL Bulkhead Mount Jack 100 and 150 Ohm



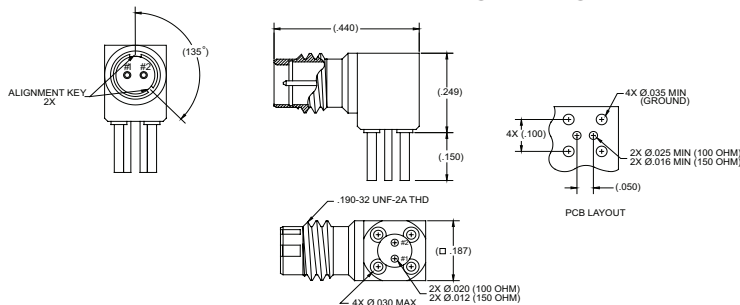
Part Number	Ohms	Cable Type	Cable
014134-5018	100	Differential Twinax	540-1153-000
014134-5019	100	Flexible Twinax	540-1161-000
014134-5020	100	Differential Twinax	540-1167-000
014134-5021	150	Differential Twinax	540-1099-000

### Threaded Micro Twinax NDL Straight Jack 100 and 150 Ohm PCB Mount



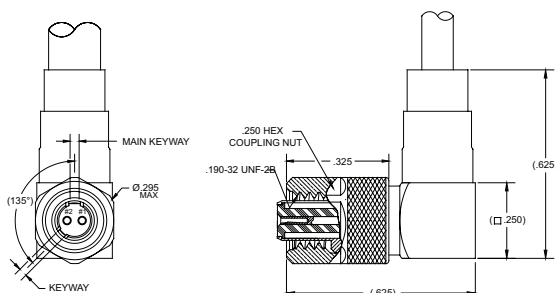
Part Number	Impedance
014117-2020	100 Ohms
014117-2021	150 Ohms

### Threaded Micro Twinax NDL Right Angle Jack 100 and 150 Ohm PCB Mount



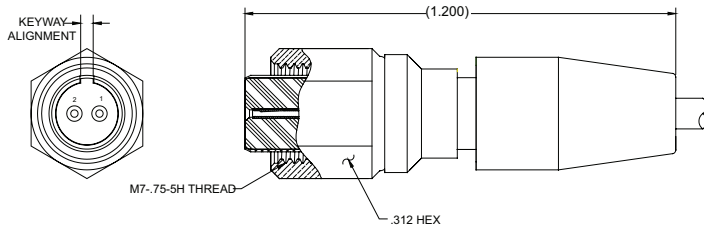
Part Number	Impedance
014117-1030	100 Ohms
014117-1031	150 Ohms

### Threaded Micro Twinax NDL Right Angle Plug 100 and 150 Ohm



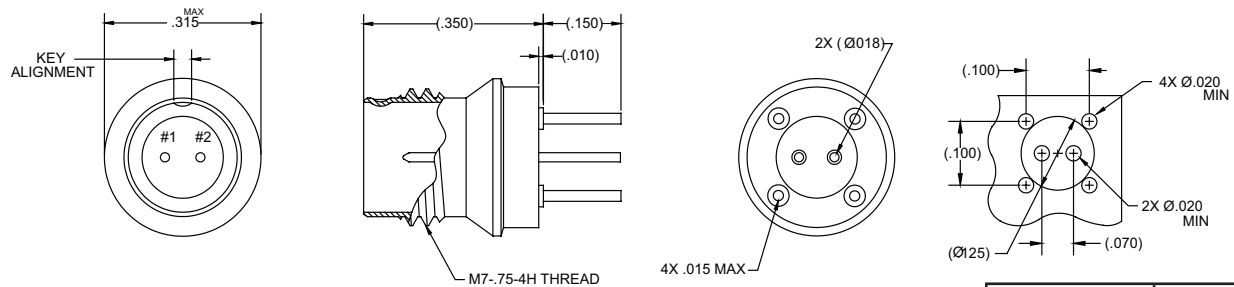
Part Number	Ohms	Cable Type	Cable
014034-1020	100	Flexible Twinax	540-1153-000
014034-1021	100	Differential Twinax	540-1161-000
014034-1022	100	Differential Twinax	540-1167-000
014034-1023	150	Flexible Twinax	540-1099-000

### Micro Twinax SMA Size Plug 100 or 150 Ohm Matched Impedance



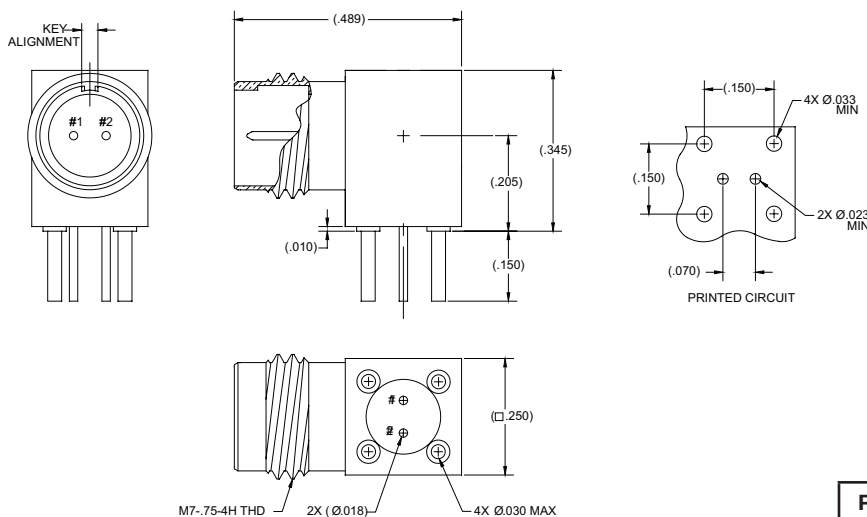
Part Number	Ohms	Cable Type	Cable
014034-2004	100	Differential Twinax	540-1153-000
014034-2010	100	Flexible Twinax	540-1161-000
014034-2015	100	Flexible Twinax	540-1086-000
014034-2003	150	Differential Twinax	540-1099-000
014034-2009	150	Differential Twinax	540-1114-000

### Micro Twinax SMA Size Straight Jack 100 or 150 Ohm Matched Impedance



Part Number	Impedance
014117-2003	100 Ohms
014117-2002	150 Ohms

### Micro Twinax SMA Right Angle Jack Straight PCB Mount 100 or 150 Ohm Matched Impedance



Part Number	Impedance
014117-1004	100 Ohms
014117-1005	150 Ohms

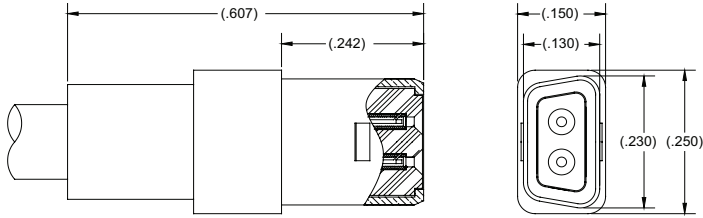




# Micro Twinax Connectors

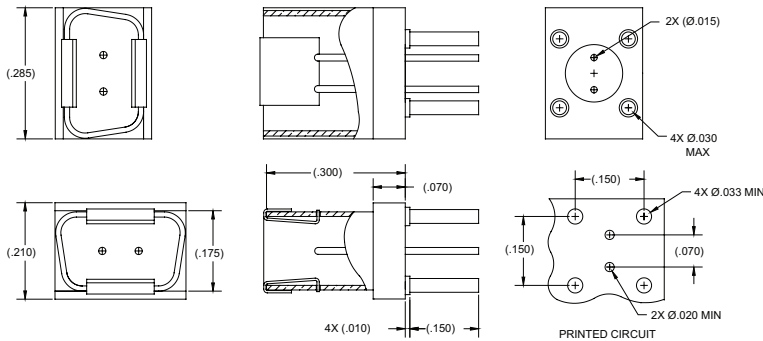
## Micro-D Size Twinax Connectors 100 and 150 Ohm

### Micro-D Twinax Straight Plug 100 or 150 Ohm Matched Impedance



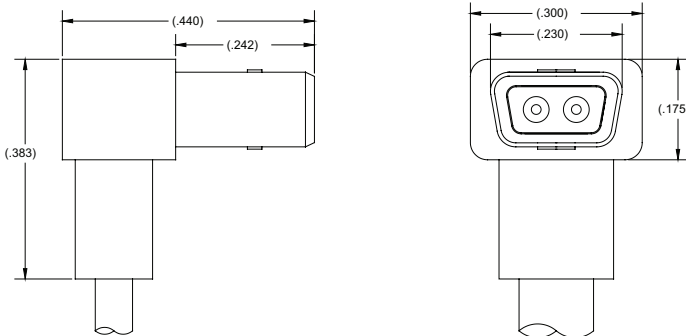
Part Number	Ohms	Cable Type	Cable
014034-2006	100	Differential Twinax	540-1153-000
014034-2005	150	Differential Twinax	540-1099-000

### Micro-D Twinax Straight Jack PCB 100 or 150 Ohm Matched Impedance



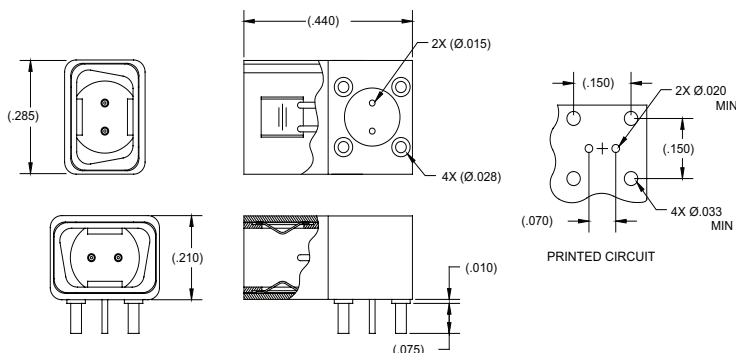
Part Number	Impedance
014117-2005	100 Ohms
014117-2004	150 Ohms

### Micro-D Twinax Right Angle Plug 100 or 150 Ohm Matched Impedance



Part Number	Ohms	Cable Type	Cable
014034-1002	100	Differential Twinax	540-1153-000
014034-1001	150	Differential Twinax	540-1099-000

### Micro-D Twinax Right Angle Jack PCB Mount 100 or 150 Ohm Matched Impedance



Part Number	Impedance
014117-1003	100 Ohms
014117-1002	150 Ohms

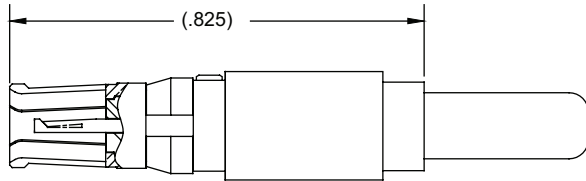


# Micro-D Twinax Connectors (MDTX)

## Size 10 Twinax Contacts 100 Ohm /Ordering Information

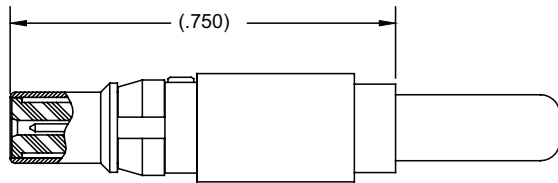
Sabritec's Micro-D Twinax Connectors (MDTX) offer twinax blindmate assemblies fitted into a low-profile metalized Micro-D style shell. This series allows for modularity of PCB routing of high speed signaling capable of 100 Ohm differential pair matched impedance for IEEE 1394b firewire and gigabit Ethernet applications.. These connectors allow for maximum space utilization, ultra miniature size, high vibration capability and are extremely light weight and modular with true signal integrity. Insert arrangements are available in 2, 4, 6 and 8 way twinax assemblies with mixed signal and power contacts available in hybrid layouts. These connectors are available with locking post mechanisms or blind mate features. Please consult Sabritec's applications engineering department for unique hybrid layouts and custom shell configurations.

### Size 10 Twinax Socket Contact 100 Ohm for MDTX Cable Mount Plug



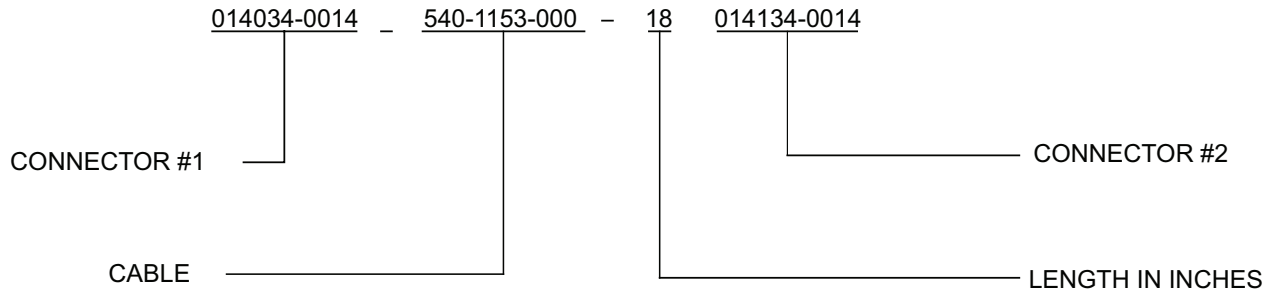
Part Number	Cable Type	Cable
018934-0002	Differential Twinax	540-1153-000
018934-0003	Flexible Twinax	540-1161-000
018934-0004	Differential Twinax	540-1167-000

### Size 10 Twinax Pin Contact 100 Ohm for MDTX Cable Mount Receptacle

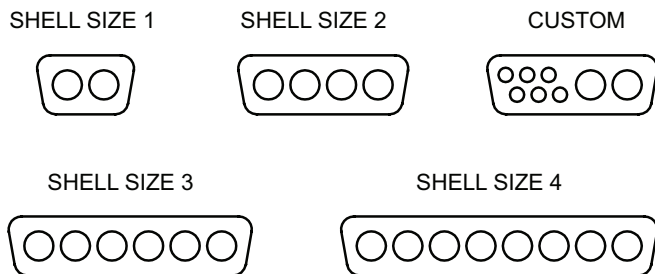


Part Number	Cable Type	Cable
018834-0002	Differential Twinax	540-1153-000
018834-0003	Flexible Twinax	540-1161-000
018834-0004	Differential Twinax	540-1167-000

### Cable Assembly Ordering Information



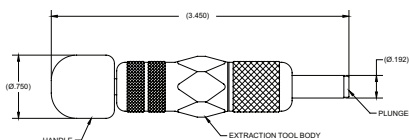
### Insert Arrangements



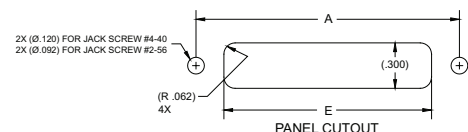
### Shell Dimensions

Shell Size	Contacts	A	B	C	D	E
1	2	.845	1.070	.600	#2-56	.955
2	4	1.285	1.510	1.040	#2-56	1.395
3	6	1.765	2.040	1.480	#4-40	1.420
4	8	2.205	2.480	1.920	#4-40	1.860

\* Removable Twinax Contacts Require Removal Tool SIR-035 (ordered separately)



Removal Tool SIR-035

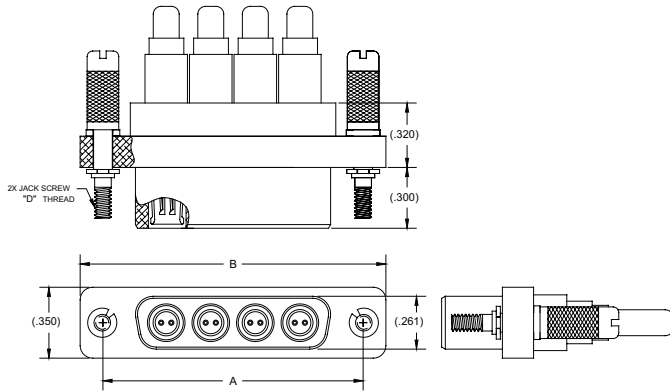




# Micro-D Twinax Connectors (MDTX)

## 100 Ohm Twinax Plug & Receptacle

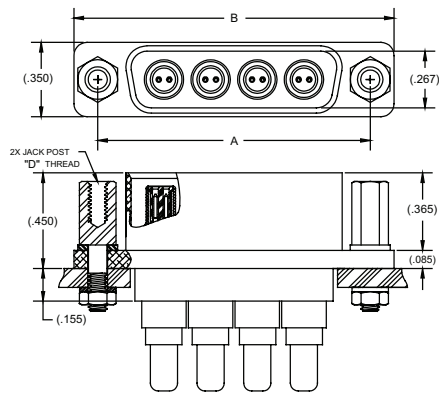
### MDTX Cable Mount Plug



Part Number	Contacts
014034-0012	2
014034-0014	4
014034-0016	6
014034-0018	8

\*Cable Mount Twinax Contacts Sold Separately  
See Page 32 for Shell Dimensions

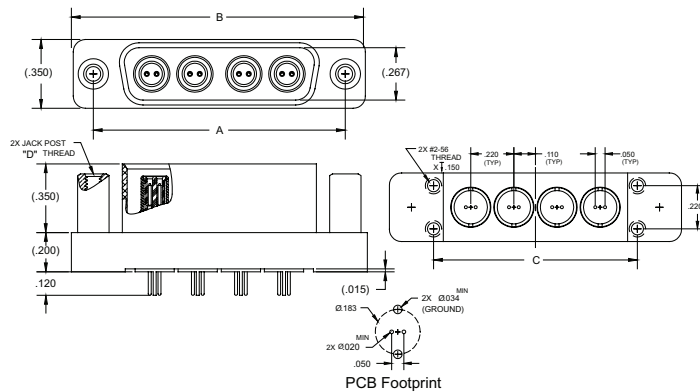
### MDTX Cable Mount Receptacle



Part Number	Contacts
014134-0012	2
014134-0014	4
014134-0016	6
014134-0018	8

\*Cable Mount Twinax Contacts Sold Separately  
See Page 32 for Shell Dimensions

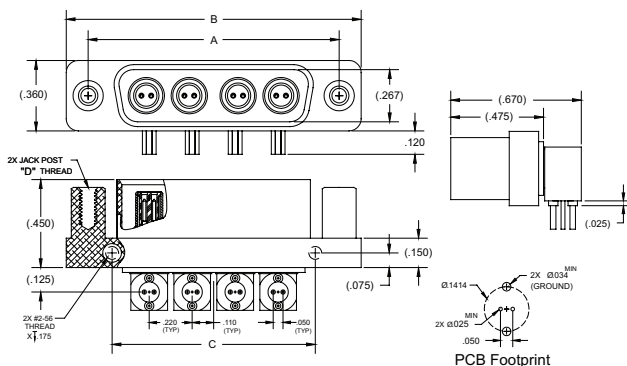
### MDTX Receptacle With Straight PC Tail Twinax Pin Contact



Part Number	Contacts
014117-0012	2
014117-0014	4
014117-0016	6
014117-0018	8

\*PC Tail Twinax Contacts included  
See Page 32 for Shell Dimensions

### MDTX Receptacle With R/A PC Tail Twinax Pin Contact



Part Number	Contacts
014117-1112	2
014117-1114	4
014117-1116	6
014117-1118	8

\*R/A PC Tail Twinax Contacts included  
See Page 32 for Shell Dimensions



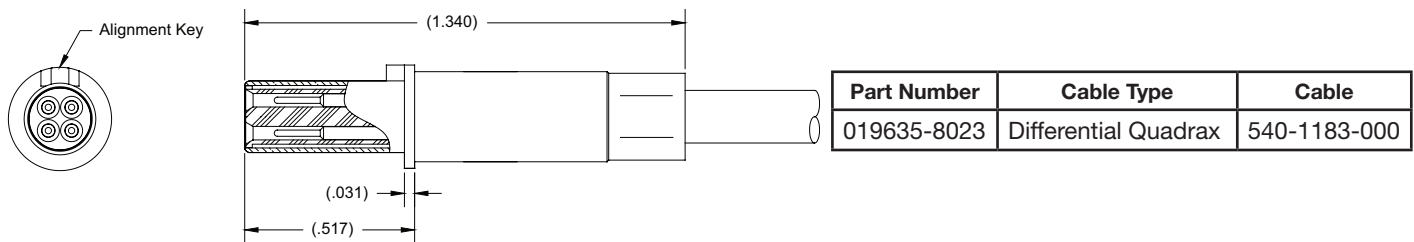
# Dura Speed Quadrax and Twinax

## Size 8 Quadrax and Twinax Contacts (DSQ/DST)

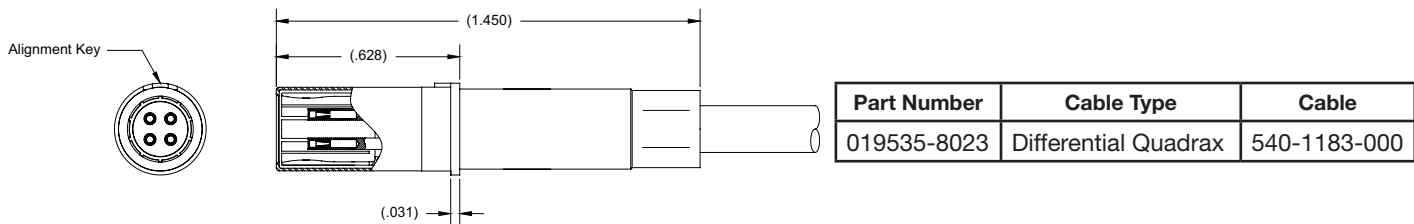
Sabritec's Dura Speed line offers true differential pair matched impedance Twinax and Quadrax contacts, where the differential pair and signal to shield impedance is maintained throughout the connector pair. These rugged low insertion force/high mating cycle precision contacts are capable of withstanding a minimum of 6,000 mating cycles. All Dura Speed Quadrax (DSQ) and Twinax (DST) contacts are designed to fit Sabritec's standard cavities for all existing connector formats for our high speed product lines which include MIL-DTL-38999, ARINC 600 and Rugged D-Subminiature.

The innovative new line of ruggedized Twinax and Quadrax contacts are ideal for blind mate I/O plug in modular applications, board to board high speed data transfer applications exceeding 2 Gbits/second, as well as circular and rack and panel connector applications. For applications requiring a minimum of 10,000 mating cycles, Hypertac's Hyperboloid® contacts are used for the center signal and outer body contacts for all Quadrax and Twinax contacts. Please consult Sabritec's applications engineering department for details.

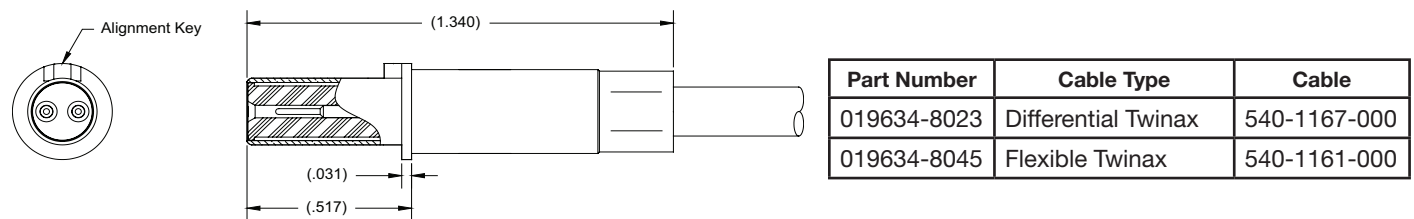
### MIL-DTL-38999 DSQ Size 8 Quadrax Pin Contact



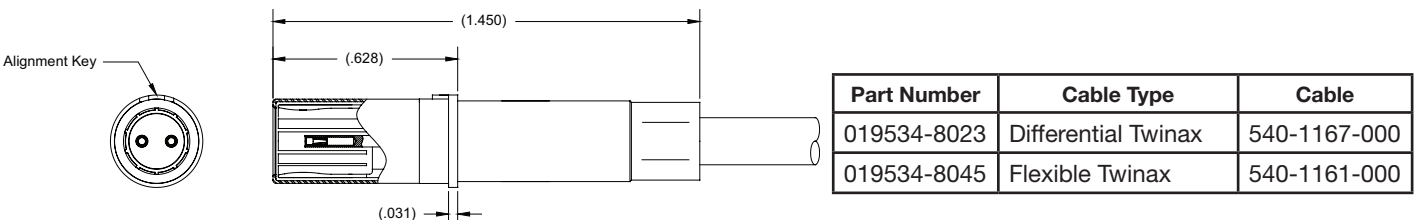
### MIL-DTL-38999 DSQ Size 8 Quadrax Socket Contact



### MIL-DTL-38999 DST Size 8 Twinax Pin Contact

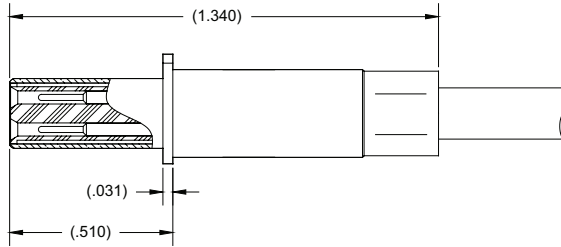
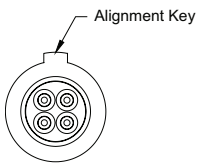


### MIL-DTL-38999 DST Size 8 Twinax Socket Contact



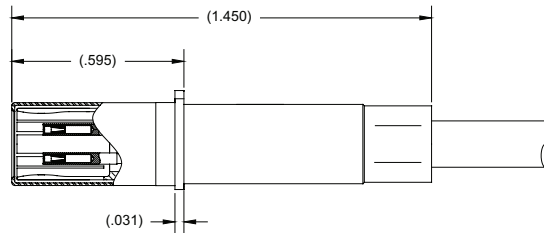
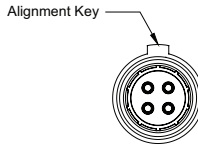
Note: Sabritec's connectors are fully intermateable with all slash sheet part #'s. Sabritec does not, however, offer standard QPL slash sheet part #'s for mil-dtl circular and rack & panel connectors because of the application specific nature of Sabritec's product offerings.

### ARINC 600 DSQ Size 8 Quadrax Pin Contact



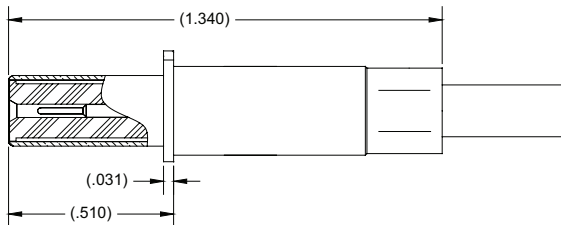
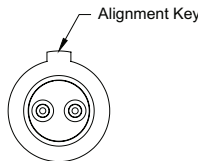
Part Number	Cable Type	Cable
019635-8041	Differential Quadrax	540-1183-000

### ARINC 600 DSQ Size 8 Quadrax Socket Contact



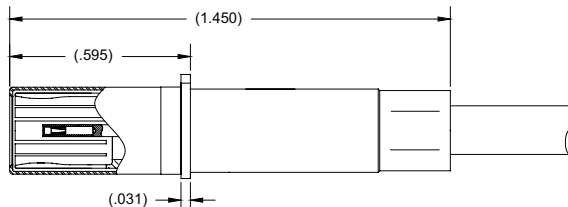
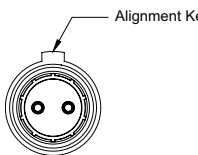
Part Number	Cable Type	Cable
019535-8041	Differential Quadrax	540-1183-000

### ARINC 600 DST Size 8 Twinax Pin Contact



Part Number	Cable Type	Cable
019634-8041	Differential Twinax	540-1167-000
019634-8044	Flexible Twinax	540-1161-000

### ARINC 600 DST Size 8 Twinax Socket Contact



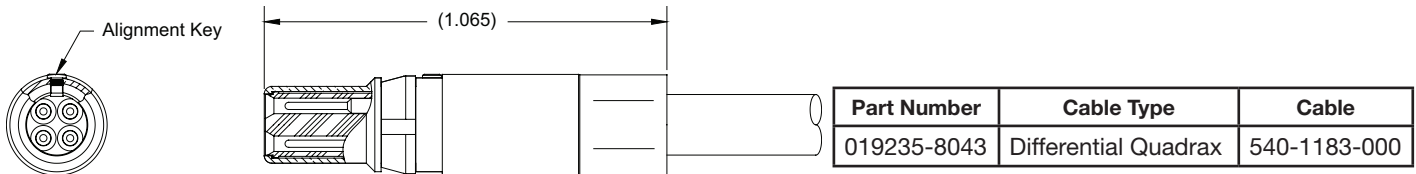
Part Number	Cable Type	Cable
019534-8041	Differential Twinax	540-1167-000
019534-8044	Flexible Twinax	540-1161-000



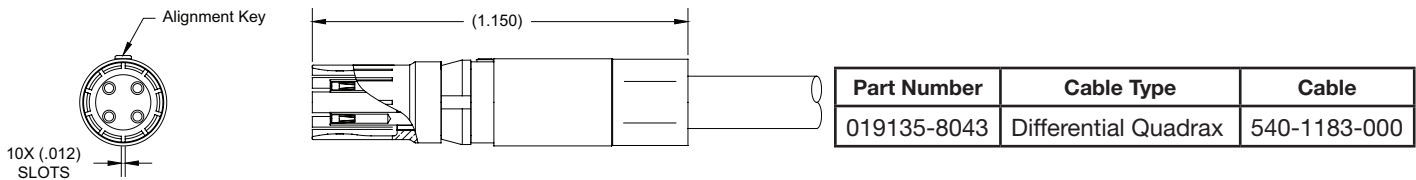
# Rugged D-Sub Dura Speed Contacts

## Size 9 Quadrax and Twinax Contacts (DSQ/DST)

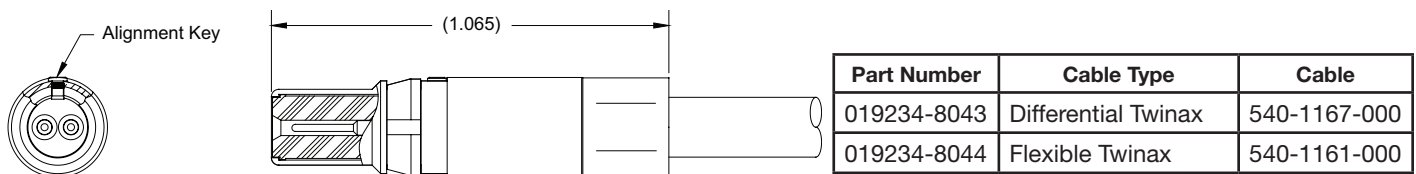
### Rugged D-Sub DSQ Size 9 Quadrax Pin Contact



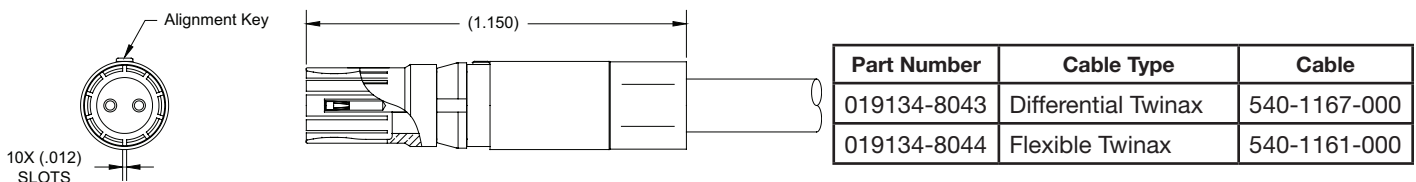
### Rugged D-Sub DSQ Size 9 Quadrax Socket Contact



### Rugged D-Sub DST Size 9 Twinax Pin Contact



### Rugged D-Sub DST Size 9 Twinax Socket Contact

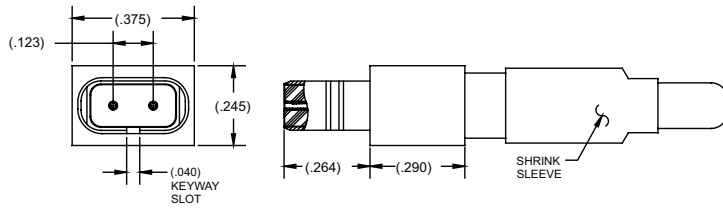




# Fibre Channel/Ethernet Connectors

## PCB and Cable Mount Twinax Connectors 150 Ohm

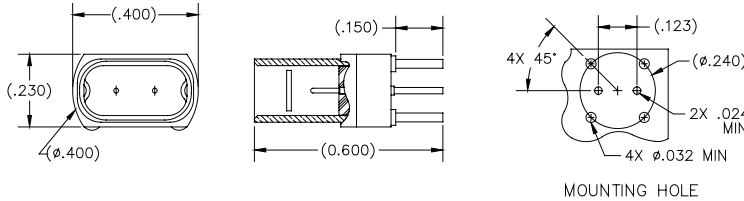
### Straight Fibre Channel Twinax Cable Connector 150 Ohm



Part Number	Cable Type	Cable
014034-8000	Differential Twinax	540-1099-000
014034-8001	Differential Twinax	540-1114-000

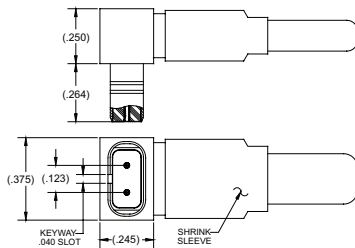
Mates with 014117- 2008 and 014117-1012

### Straight Fibre Channel Twinax PCB Mount Connector 150 Ohm



**P/N 014117-2008**

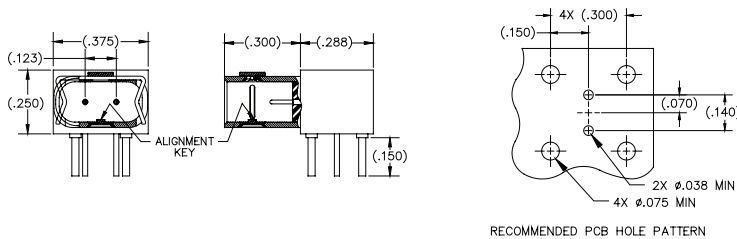
### Right Angle Micro-Miniature D-Sub Twinax Cable Connector 150 Ohm



Part Number	Cable Type	Cable
014034-1009	Differential Twinax	540-1099-000
014034-1010	Differential Twinax	540-1114-000

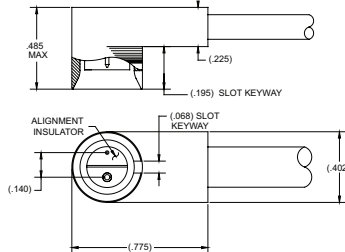
Mates with 014117- 2008 and 014117-1012

### Right Angle Micro-Miniature D-Sub Twinax PCB Mount Connector 150 Ohm



**P/N 014117-1012**

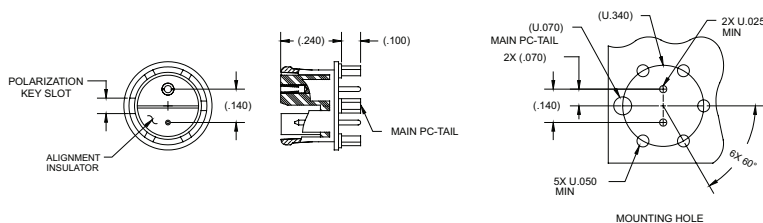
### Quick Disconnect Twinax Receptacle Right Angle Cable Mount Connector 150 Ohm



Part Number	Cable Type	Cable
019912-1306	Differential Twinax	540-1099-000
019912-1017	Differential Twinax	540-1114-000

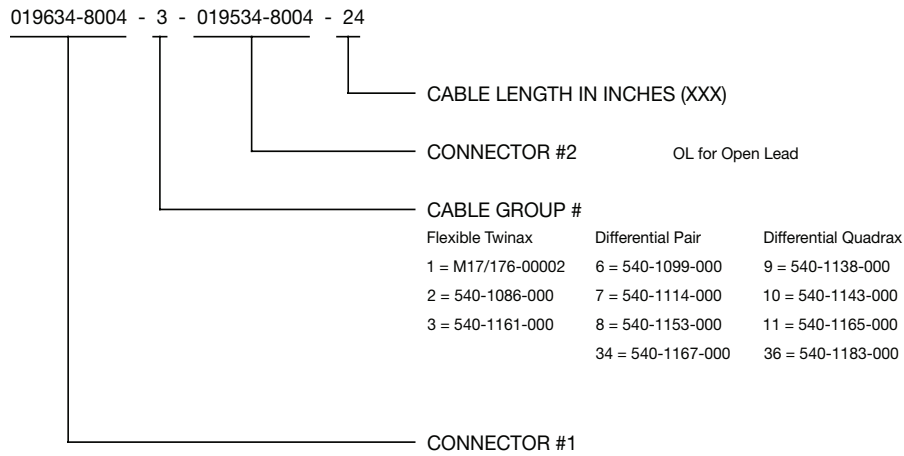
Mates with 019917-2040

### Quick Disconnect Twinax PCB Mount Connector 150 Ohm

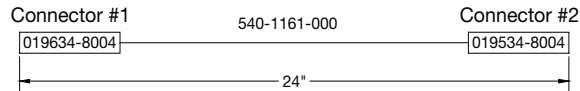



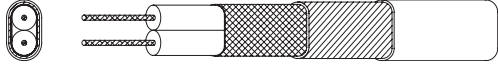
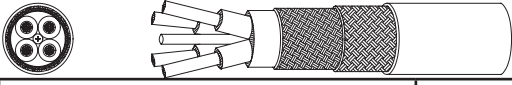
**P/N 019917-2040**

### Quadrax & Twinax Part Number Description Codes



Sample Part Number Code: 019634-8001 / 3 / 019534-8004 / 24



Flexible Twinax Cables				
				
Cable Group	Cable Designation	Impedance (Ohms)	Jacket	Conductor (DIA)
1	M17/176-00002	77	0.129"	0.024"
2	540-1086-000	98	0.143"	0.019"
3	540-1161-000	100	0.130"	0.024"
Differential Pair Twinax Cables				
				
6	540-1099-000	Differential: 150 Sig. to Shield: 75	0.097" x 0.160"	0.014" Stranded
7	540-1114-000	Differential: 150 Sig. to Shield: 75	0.138" x 0.224"	0.020" Solid
8	540-1153-000	Differential: 100 Sig. to Shield: 50	0.085" x 0.130"	0.019" Stranded
34	540-1167-000	Differential: 100 Sig. to Shield: 50	0.117" x 0.160"	0.0233" Stranded
Differential Quad Cables				
				
9	540-1138-000	Differential: 150 Sig. to Shield: 75	0.290"	0.032"
10	540-1143-000	Differential: 150 Sig. to Shield: 75	0.190"	0.020"
11	540-1165-000	Differential: 100 Sig. to Shield: 50	0.175"	0.025"
36	540-1183-000	Differential: 100 Sig. to Shield: 50	0.160"	0.024"





# ARINC 801 Technology

## Part Numbering Scheme for ARINC 600 and MIL-DTL-38999

The ARINC 801 fiber optic terminus is the next generation of butt-joint interconnect technology allowing for higher density multichannel connectors to be achieved. With its standard 1.25 mm ferrule and sleeve, the ARINC 801 terminus is designed for both multimode and single-mode applications and is compatible with standard LC termination processes. The terminus is available both as a pull-proof design and a general use design for tight jacketed cable.



For the pull-proof design, the cable jacket is crimped on an external body and a floating mechanism avoids any loss of performance when pulling on the cable. This feature allows for the use of the connector without a backshell. Standard connector formats include MIL-DTL-38999 Series III type, MIL-DTL-83527 type, ARINC 600 and ARINC 781.

Sabritec has successfully passed qualification testing of its Size 16 ARINC 801 terminus for single and multi-mode applications. Qualification test results show that Sabritec's ARINC 801 terminus maintains its low loss while being intermateable/interoperable with qualified termini and connectors. Complete qualification test results are available on our website.

### MIL-DTL-38999 Part Number Description Code

38999/III - W - C - 21-16 - P - N

PREFIX:

SHELL STYLE:

J - Jam Nut

W - Wall Mount (Front or Rear Mount)

P - Plug

MATERIAL/PLATING:

C - Aluminum Alloy/Cadmium over Nickel

N - Aluminum Alloy/Electroless Nickel

S - Stainless Steel

CC - Composite/Cadmium over Nickel

CN - Composite/Electroless Nickel

(Consult factory for alternate plating options)

POLARIZATION:

N, A, B, C, D, E

CONTACT TYPE:

P - Pin

S - Socket

INSERT ARRANGEMENT:

13-04, 15-06, 21-16



### ARINC 600 Part Number Description Code

600 - 2 - P - N - 150 - P - 150 - P - 12F5C2 - P - C

PREFIX:

SHELL SIZE:

1, 2, 3

SHELL STYLE:

P - Plug

R - Receptacle

PLATING:

C - Cadmium (Yellow Chromate)

N - Electroless Nickel

CONTACT TERMINATION:

S - Solder Cup

P - PC Tail

C - Crimp

INSERT ARRANGEMENTS:

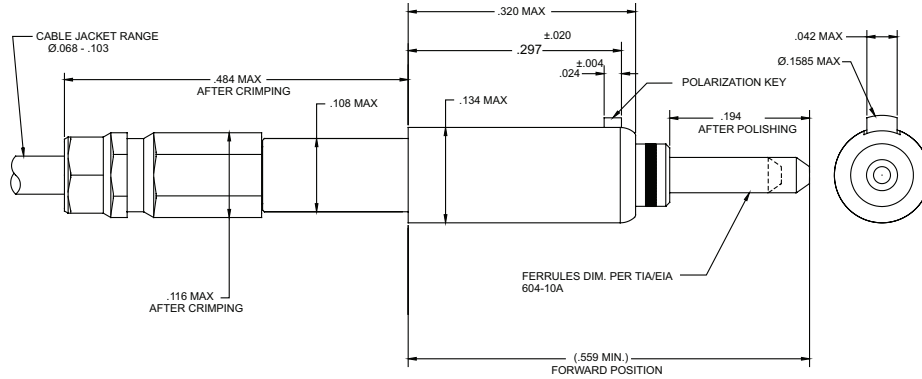
Cavity A, B, C, D, E, F

CONTACT TYPE:

P - Pin (Front Release/Rear Removable PC Tail Version)

S - Socket (Rear Release/Rear Removable Cable Mount)

### Size 16 ARINC 801 Terminus

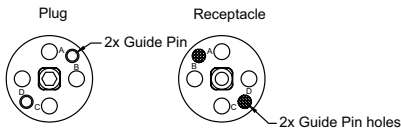


Part Number	Mode	Style	Polish
238500-8000	Multi	Pull Proof Loose Jacket	PC
238500-8001	Multi	Tight Jacket	PC
238500-8002	Single	Pull Proof Loose Jacket	PC
238500-8003	Single	Pull Proof Loose Jacket	APC
238500-8004	Single	Tight Jacket	PC
238500-8005	Single	Tight Jacket	APC

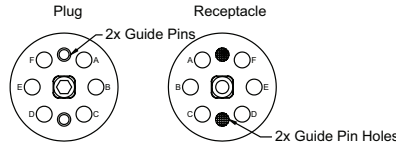


### MIL-DTL-38999 Insert Arrangements

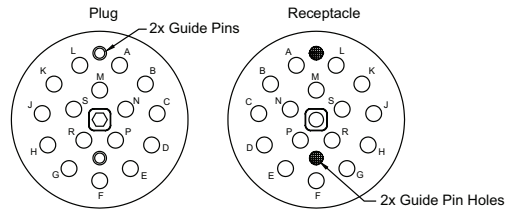
ARRANGEMENT 13-04



ARRANGEMENT 15-06

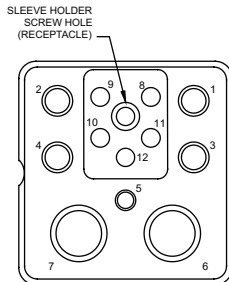


ARRANGEMENT 21-16



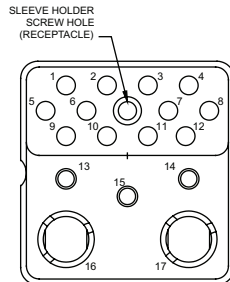
### ARINC 600 Insert Arrangements

ARRANGEMENT 12F5C2



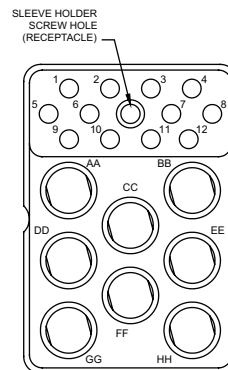
QTY	CONTACT SIZE	CAVITY I.D.
4	12 (ELECTRICAL)	1 THRU 4
1	16 (ELECTRICAL)	5
2	5 (QUADRAX)	6 THRU 7
5	16 (OPTICAL TERMINI)	8 THRU 12

ARRANGEMENT 17F12Q2



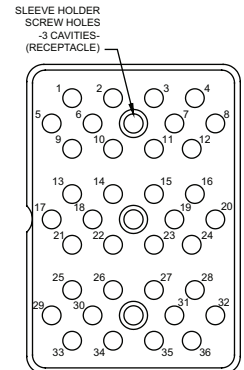
QTY	CONTACT SIZE	CAVITY I.D.
12	16 (OPTICAL TERMINI)	1 THRU 12
3	16 (ELECTRICAL)	13 THRU 15
2	8 (QUADRAX)	16 THRU 17

ARRANGEMENT 20F12T8/20F12Q8



QTY	CONTACT SIZE	CAVITY I.D.
12	16 (OPTICAL TERMINI)	1 THRU 12
8	8 (TWINAX/QUADRAX)	AA THRU HH

ARRANGEMENT 36F36



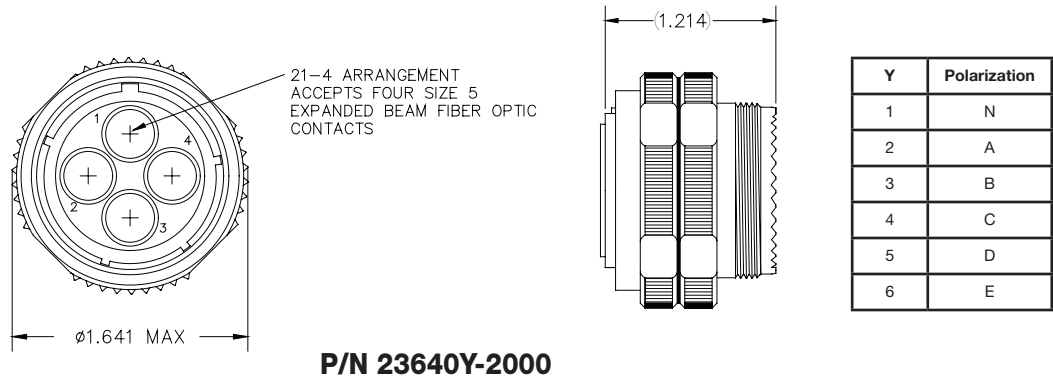
QTY	CONTACT SIZE	CAVITY I.D.
36	16 (OPTICAL TERMINI)	1 THRU 36



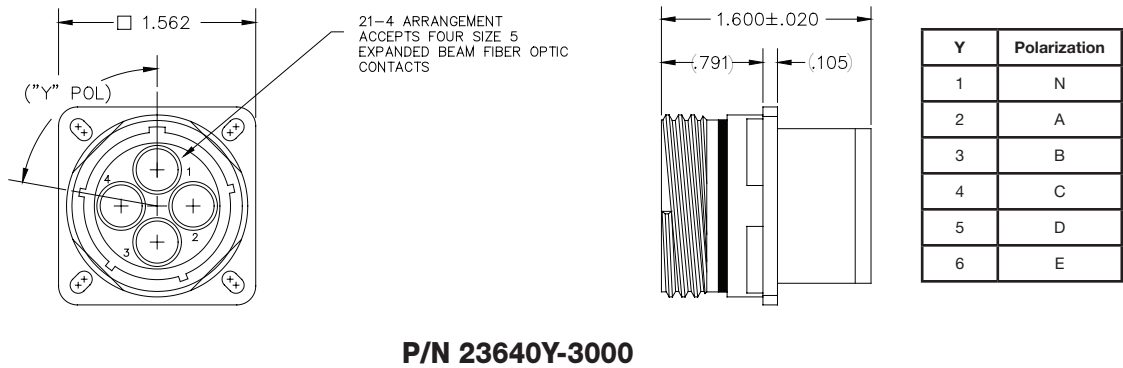
# MIL-DTL-38999 Fiber Optic Connectors

## Size 5 Expanded Beam Fiber Optic Insert Cavities

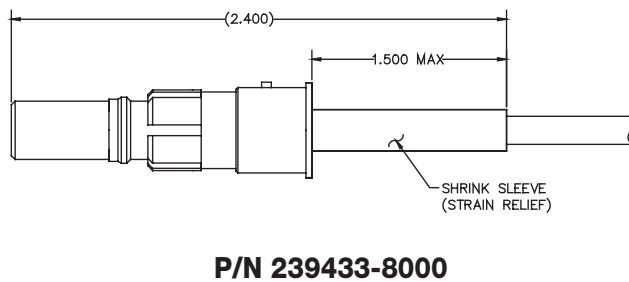
### MIL-DTL-38999 Size 21-4 Fiber Optic Plug



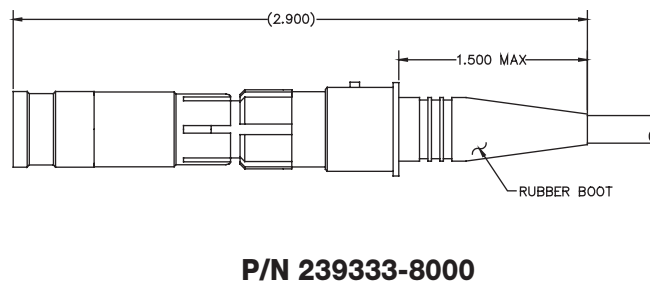
### MIL-DTL-38999 Size 21-4 Fiber Optic Receptacle



### Size 5 Expanded Beam Lens Pin Contact



### Size 5 Expanded Beam Lens Socket Contact

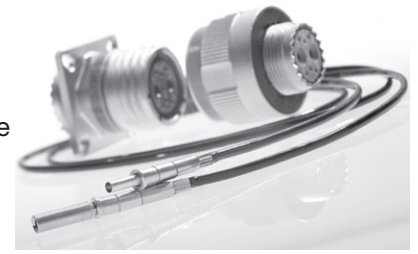




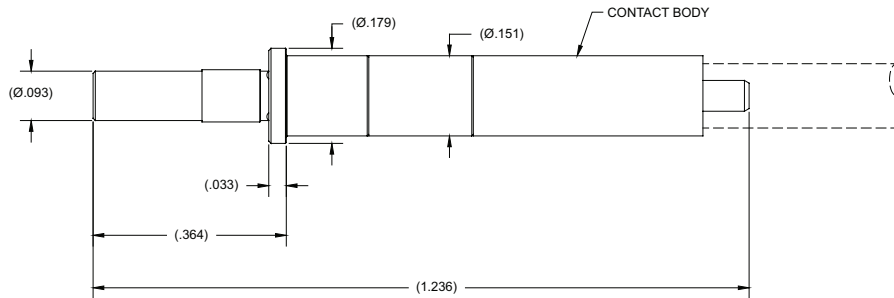
# Size 12 Expanded Beam Contacts

## Pin and Socket Contacts for MIL-DTL-38999

Sabritec's new Expanded Beam Fiber Optic Contact technology is specifically designed to fit into standard size 12 cavities of MIL-DTL-38999 Series I, III and IV connectors. The size 12 contact provides a robust fiber optic interconnection with low susceptibility to contamination and fits a variety of cable types with diameters from 1.6 to 2.2 mm with additional versions available upon request. The contacts are rear release/rear removable with standard size 12 removal tools.

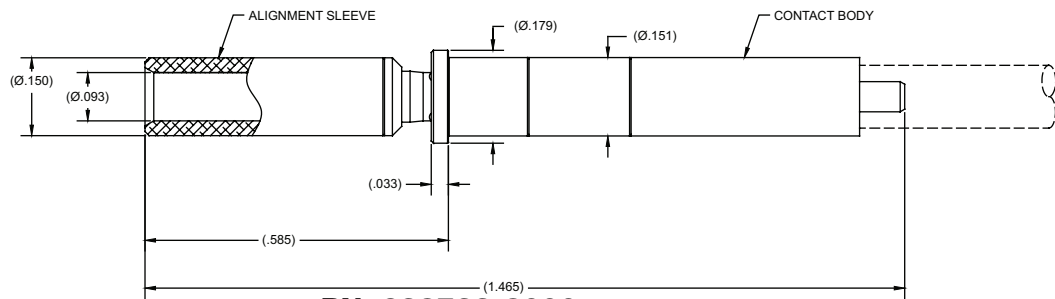


### Size 12 Expanded Beam Pin Contact



PN: 238633-8000

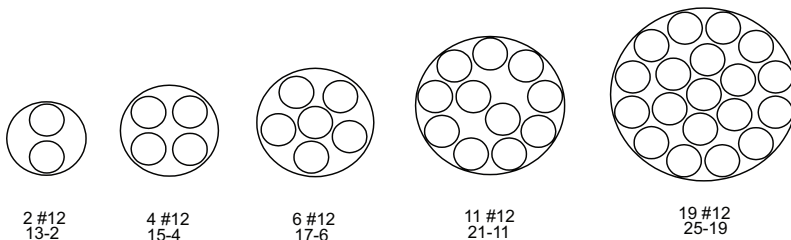
### Size 12 Expanded Beam Socket Contact



PN: 238733-8000

### Sample Size 12 Insert Arrangements

Standard Insert Arrangements for MIL-STD-1560



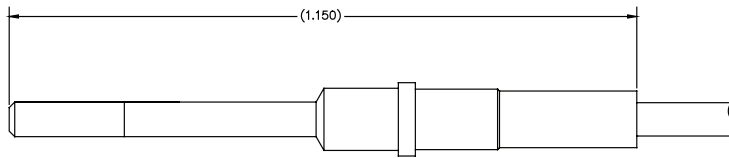
Specifications	
Operating Temperature	-40°C to + 85°C
Fiber Types	Multimode: 50/125 μm 62.5/125 μm
Insertion Loss	1.0 dB (Typical)
Cable Diameter	1.6mm to Ø2.2mm
Ferrules	Zirconia Ceramic
Contact Body	ARCAP
Alignment Sleeve	Stainless Steel



# Butt-Joint & DIN Contacts

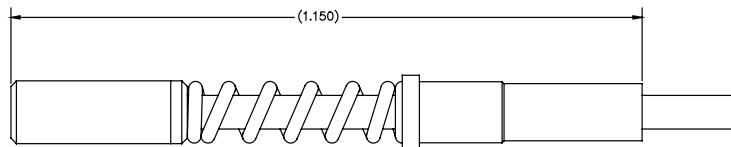
## Size 16 Butt-Joint and DIN 41626-3 Contacts

### ARINC 404 Size 16 Butt-Joint Pin Contact Conforming to M29504/6



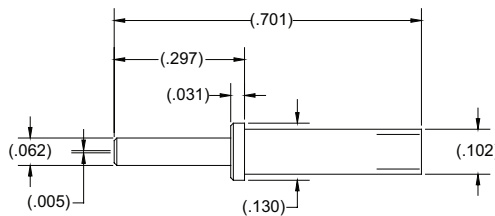
P/N 238533-8000

### ARINC 404 Size 16 Butt-Joint Socket Contact Conforming to M29504/7



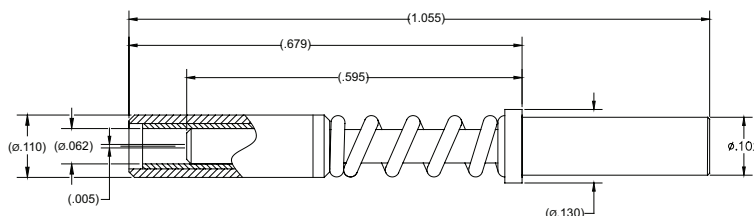
P/N 238433-8000

### MIL-DTL-38999 Size 16 Butt-Joint Pin Contact Conforming to M29504/4



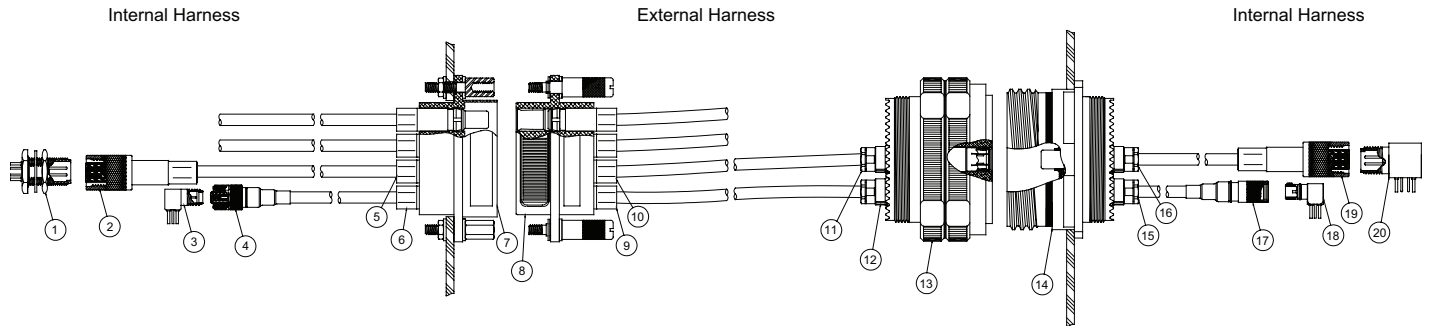
P/N 238533-8004

### MIL-DTL-38999 Size 16 Butt-Joint Socket Contact Conforming to M29504/5



P/N 238433-8004

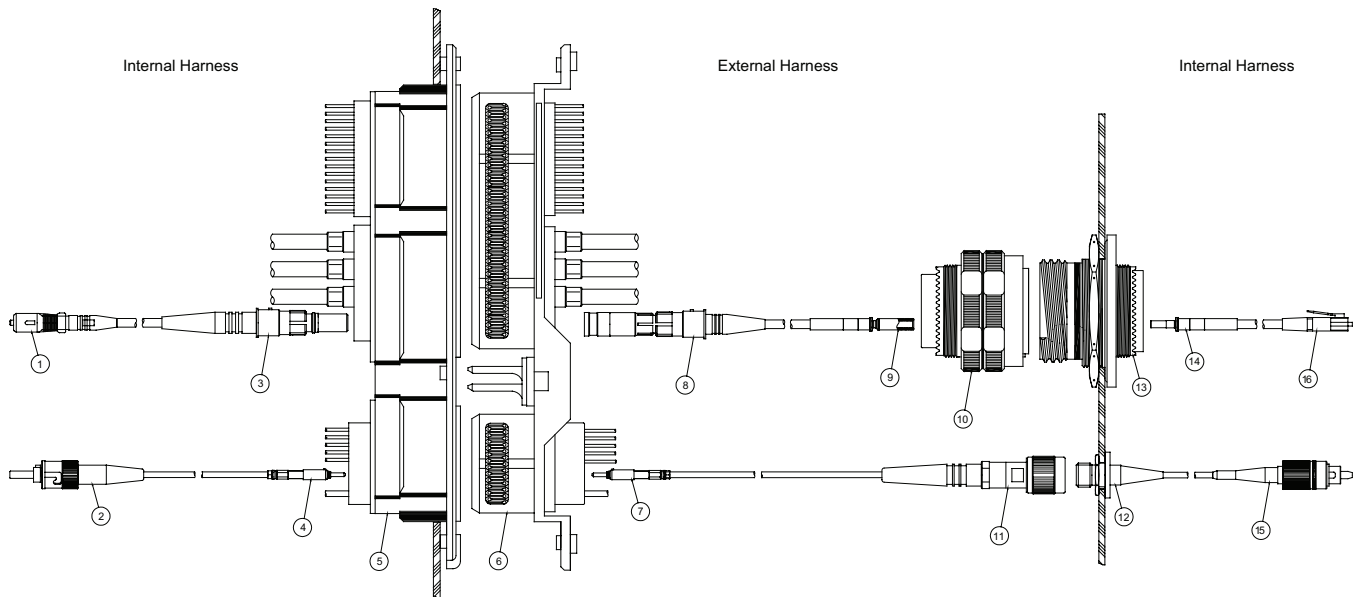
### High Speed Quadrx and Twinax System Diagram



	Description	Type	Sabritec P/N
1	100 Ohm Straight Bulkhead Quadrx connector, PCB mount.	Jack	012817-5001
2	100 Ohm Straight Quadrx cable connector.	Plug	012735-2XXX
3	100 Ohm R/A Micro Twinax connector, PCB mount.	Jack	014117-1030
4	100 Ohm Micro Twinax cable connector.	Plug	014034-2XXX
5	#9 Quadrx Cable Contact.	Pin	019235-8XXX
6	#9 Twinax Cable Contact.	Pin	019234-2XXX
7	4 Way Ruggedized D-sub connector.	Receptacle	012800-3XXX
8	4 Way Ruggedized D-sub connector.	Plug	012700-2XXX
9	#9 Twinax Cable Contact.	Socket	019135-0XXX
10	#9 Quadrx Cable Contact.	Socket	019135-8XXX

	Description	Type	Sabritec P/N
11	#8 Quadrx Cable Contact.	Socket	019535-0XXX
12	#8 Twinax Cable Contact.	Socket	019534-0XXX
13	MIL-DTL-38999/26, #25-8, N Polarization	Plug	012600-2XXX
14	MIL-DTL-38999/20, #25-8, N Polarization	Receptacle	012600-3XXX
15	#8 Twinax Cable Contact.	Pin	019634-0XXX
16	#8 Quadrx Cable Contact.	Pin	019635-0XXX
17	100 Ohm Straight Quick Connect Micro Twinax Connector.	Plug	014034-2XXX
18	100 Ohm R/A Quick Connect Micro Twinax Connector, PCB Mount.	Jack	014117-1037
19	100 Ohm Straight Micro Quadrx cable connector.	Plug	012735-2XXX
20	100 Ohm R/A Quadrx Connector, PCB Mount.	Jack	012817-1000

### Fiber Optic System Diagram



	Description	Type	Sabritec P/N
1	SC Connector	Plug	230533-2XXX
2	ST Connector	Plug	230033-2XXX
3	Size 5 Expanded Beam	Pin	239433-8XXX
4	Size 16 Arinc 801	N/A	238500-8XXX
5	Arinc 600	Receptacle	0176XX-3XXX
6	Arinc 600	Plug	0176XX-2XXX
7	Size 16 Arinc 801	N/A	238500-8XXX
8	Size 5 Expanded Beam	Socket	239333-8XXX

	Description	Type	Sabritec P/N
9	Size 12 Expanded Beam	Socket	238733-8XXX
10	D38999, 21-11 arrangement	Plug	0164XX-2XXX
11	Ruggedized Single Channel	Plug	230533-2XXX
12	Ruggedized Single Channel	Receptacle	230633-3XXX
13	D38999, 21-11 arrangement	Receptacle	0164XX-3XXX
14	Size 12 Expanded Beam	Pin	238633-8XXX
15	FC Connector	Plug	230033-2XXX
16	LC Connector	Plug	239033-2XXX



# Company Profile



## **We Welcome Your Challenges!**

In today's high technology environment, success comes to those with the agility to move in new directions very quickly. Organizations must be adept in rapid response, creativity and flexibility balanced with a commitment to the highest quality and price performance. Sabritec is such a company.

Many of our customers first come to us with a difficult interconnect problem. Often, they are using a connector or cabled system that must be upgraded to handle new size and weight constraints, and/or harsher environments. They are pleased with our solutions, and you will be, too. Drawing on solid experience, Sabritec's professional technical team wastes no time on the route to a successful solution. In fact, we may have already solved a problem similar to yours.

Sabritec's operations are completely consolidated into our fully equipped facility in Irvine. This facility is vertically integrated from initial concept, design and development, through production and acceptance testing, guaranteeing the customer the best product quality available anywhere. Further comprehensive in-house manufacturing and assembly capabilities assure total control over both quality and lead time, providing flexibility to meet your tight schedules and to react to midstream specification changes with a minimal schedule impact.

Working with Sabritec can ensure the smooth progress of your projects to save time and money and contribute greatly to the program's overall success. We will work closely with your procurement and engineering staffs to define requirements clearly and to respond quickly as well as in a cost effective manner.

Sabritec's proven ability to perform can be a major advantage in your next program. Call or e-mail us for details on how quickly we can become an important part of your team. Sabritec is an ISO 9001:2000/AS9100 Rev B Certified company.



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[www.sabritec.com](http://www.sabritec.com)**