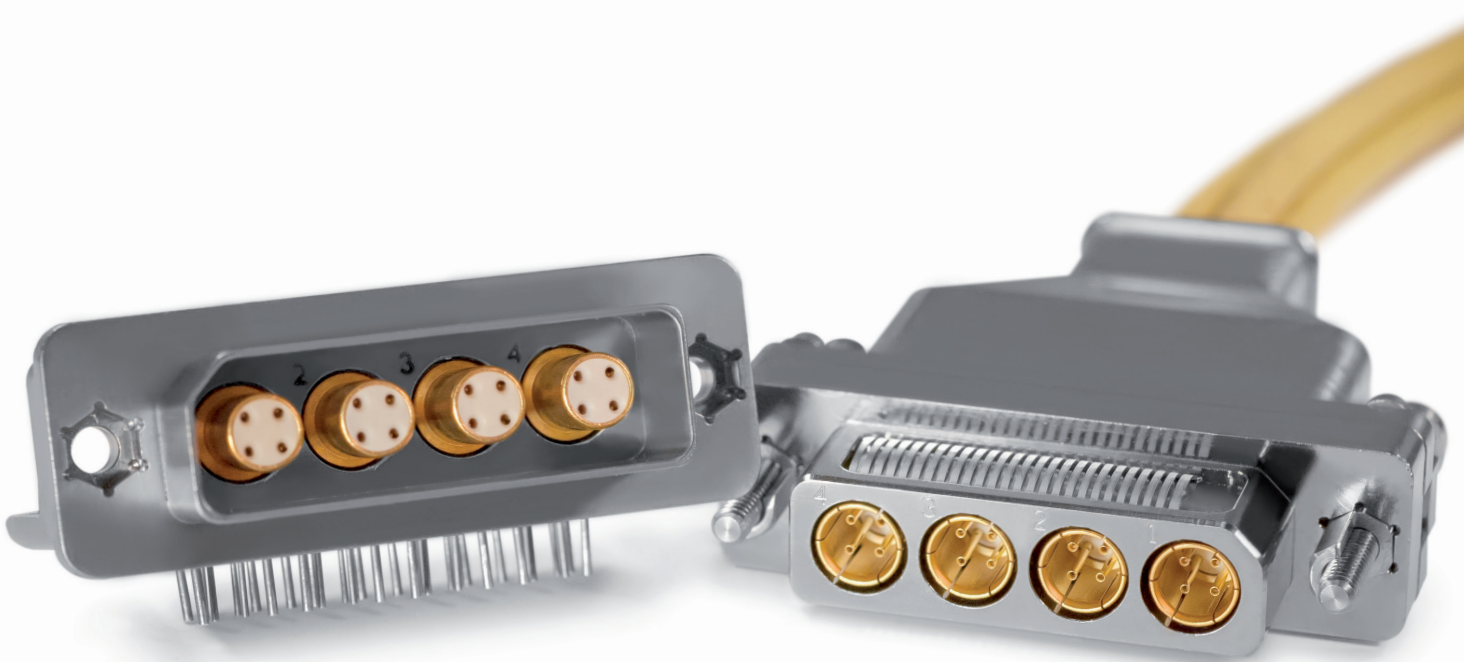


Rugged D-Sub Series

Robust High-Speed Twinax & Quadrax Connectors



Rugged D-Sub



With decades of industry-leading experience developing application-specific, high reliability interconnect solutions, Smiths Interconnect knows the importance with high impedance D-Sub connectors to ground the outer shield of the twinax or quadrx contact directly to the connector shell. Our Rugged D-Sub connector series does this with a multi-finger ground spring fixed around the shell to provide multi-point contact engagement that affords superior EMI shielding and extremely low contact resistance of the contact outer body to the connector flange.

Offered with 100 ohm quadrx and/or differential pair twinax, the Rugged D-Sub connector series from Smiths Interconnect ensures minimal RF noise and high durability of up to 1,000 mating cycles while meeting and exceeding all requirements of MIL-STD-202 for shock and vibration. Factory consultation is recommended when other impedances are required.

The introduction of the split pair Quadrx contacts ensure a greater transmission distance and speed. Our split pair Quadrx, the next generation of high speed contact, provides a robust contact that is compatible with existing qualified rugged D-Sub connectors. This ensures fit with existing housings and demonstrated performance supporting data rates 10 Gbps. The Rugged D-Sub with Split Pair Quadrx supports all mechanical and environmental performance parameters with significantly enhanced electrical signal integrity.

In bringing this comprehensive interconnect solution to market, a conscious effort was taken to look at it through the eyes of customers. The end result is a rugged connector that embodies both innovation and common sense, combining ease of assembly with a leading-edge production tool method and innovative quality inspection.

When multiple high speed rugged D-sub connectors are deployed within systems electrical problems often occur due to the incompatibility of the high speed D-sub plug to the receptacle. This can occur if one set of rugged D-sub connectors are differential twinax and the other is quadrx. To ensure that the high speed connectors are correctly matched, and in accordance to specific wiring requirements, we incorporated a keyed jack post into the design. Allowing for 36 possible keying combination, the six-positioned keyed jack post ensures correct mating every time.

Committed to developing the next generation of advanced interconnect solutions, Smiths Interconnect delivers the critical edge that customers require with the Rugged D-Sub connectors series.

Features

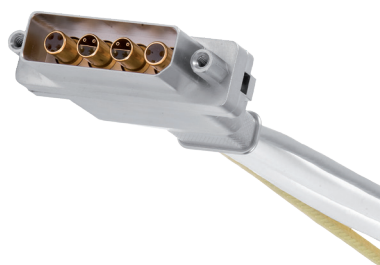
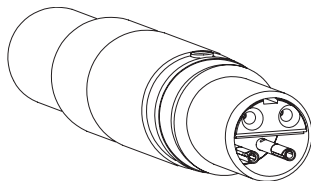
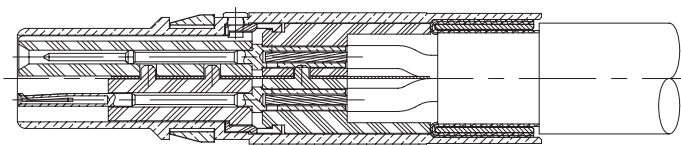
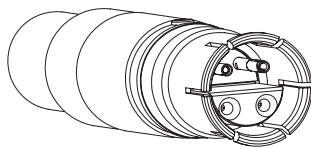
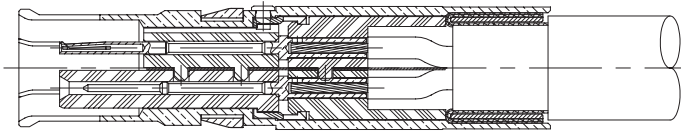
- Standard non-keyed insert arrangements: 4, 6, 8, 12, 16, 21 way; hybrid options available
- Multiple impedances available: 100 ohm, 110 ohm, 150 ohm
- Data rates up to 10 Gbps
- Six position keyed and non-keyed jack post versions
- Common back shells with a wide assortment of accessories, guide hardware and sealing grommets
- Integrated EMI spring fingers offering superior EMI performance with low contact resistance
- Electrical performance ensures system signal integrity with data rates performance exceeding 10 Gbps

Benefits

- Product versatility/modularity
- Unparalleled immunity to shock and vibration
- Outstanding space savings on narrow mounted panels
- Specifically designed for extreme durability and performance
- Stable impedance for signal integrity, which provides greater transmission distance or speed
- Keyed jack post ensures correct intermateability
- Optimized impedance matching for signal integrity
- Allows data transfer under extreme environmental exposure
- Superior EMI shielding & mating
- Proven pedigree provides application confidence

Isolated Split Pair Quadrax Contacts

Robust high speed performance



Reverse gender
high-speed performance
quadrax contacts
for the next generation
of D-Sub connectors

Features

- Surpasses all MIL-STD-202 requirements for shock and vibration
- Multi-finger contact engagement for superior EMI shielding
- Extremely low contact resistance
- Offered with 100 W dual twinax matched impedance
- Data rates up to 10 Gbps
- Six-position keyed and non-keyed jack post versions
- Outstanding space savings on narrow mounting panels

Benefits

- Electrical performance ensures system signal integrity with data rates performance up to 10 Gbps
- Provides system level performance of a twinax with the higher density expected from a quadrax
- Proven and qualified mechanical and environmental performance of the contact and connector system
- Stable, optimised impedance for signal integrity provides greater transmission distance or speed
- Keyed jack post ensures correct intermateability
- Allows data transfer under extreme environmental exposure

Technical Characteristics

Materials & Finishes		Standards
Temperature Rating	-65 °C to 165 °C	—
Durability	500 mate/unmate cycles min.	—
Corrosion	Meets requirements	MIL-STD-202 Method 101, Test Condition B
Shock	Meets requirements	MIL-STD-202 Method 213, Test Condition B
Vibration	Meets requirements	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	Meets requirements	MIL-STD-202 Method 107, Test Condition B

Environmental

Contact Body & Inner Contacts	BeCu, UNS C17200, C17300, TD04 Gold plating	ASTM-B196 — ASTM-B488
Other Metal Contact Parts	Brass, UNS C36000, H02 Gold plating	ASTM-B16 — ASTM-B488
Insulators	PTFE, Utlem 1000 or LCP	— —
Plug/Receptacle Shell	Aluminum 6061-T6 Electroless nickel plating	ASTM-B211 SAE AMS-C-26074

Electrical

Contact Current Rating	3.0 A max.	—
DWV	500 VDC max.	MIL-STD-202 Method 301
Insulation Resistance	5,000 M Ω min. @ 200 VDC	MIL-STD-202 Method 302
Bandwidth	Up to 3 GHz	—
Data Rates	6.25 - 10 Gbps	—
Differential Pair Cable Impedance	150 Ω + 15 Ω 100 Ω + 10 Ω	—
Signal to Shield Cable Impedance	75 Ω + 10 Ω 50 Ω + 7 Ω	—

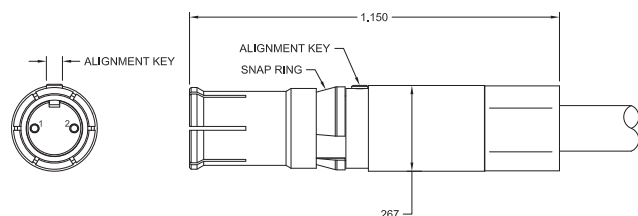
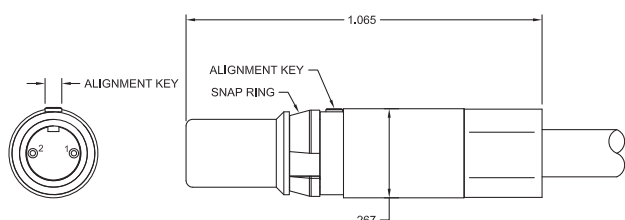
All specifications are subject to change without notice

Dimensions

Contacts, Keyed & Non-Keyed Shells

Size 9 Twinax/Quadrax Contacts

100 Ohm



Twinax Pin Contact

For use in Size 9 Quadrax/Twinax D-Sub Receptacle
P/N: 012800-30XX and 052700-3XXX

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

Twinax Socket Contact

For use in Size 9 Quadrax/Twinax D-Sub Plug
P/N: 012700-20XX and 052800-2XXX

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

Quadrax Pin Contact

For use in Size 9 Quadrax/Twinax D-Sub Receptacle
P/N: 012800-30XX and 052700-3XX

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

Quadrax Socket Contact

For use in Size 9 Quadrax/Twinax D-Sub Plug
P/N: 012700-20XX and 052800-20XX

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

Notes:

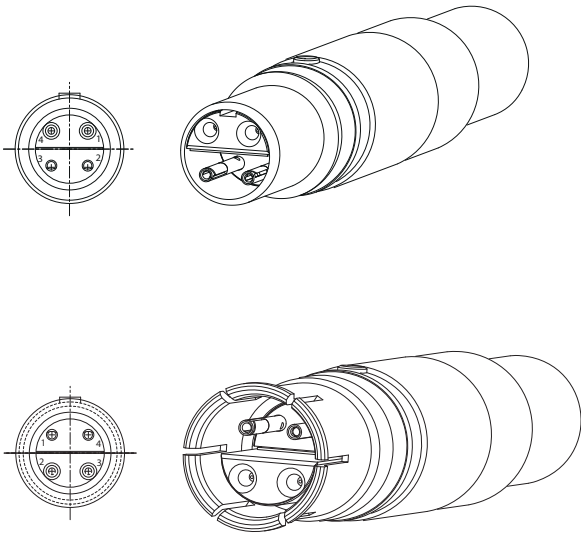
1. Dimensions are in inches
2. All specifications are subject to change without notice

Dimensions

Contacts, Keyed & Non-Keyed Shells

Size 9 Split Pair Quadrax Contacts

100 Ohm



Split Pair Pin Contact

For use in Size 9 Quadrax D-Sub Receptacle

Part Number	Cable Type	Cable
019235-8033	Split Quadrax	THERMAX 1536-224 & WL GORE RCN9062, RCN9007

Split Pair Socket Contact

For use in Size 9 Quadrax D-Sub Plug

Part Number	Cable Type	Cable
019135-8033	Split Quadrax	THERMAX 1536-224 & WL GORE RCN9062, RCN9007

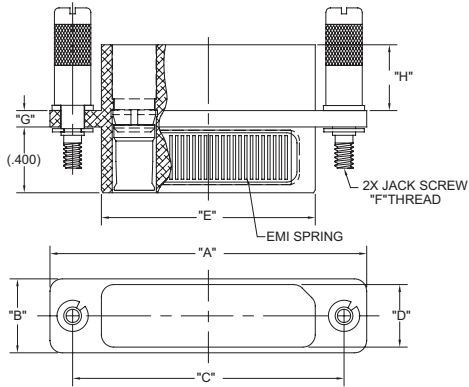
Notes:

1. Dimensions are in inches
2. All specifications are subject to change without notice

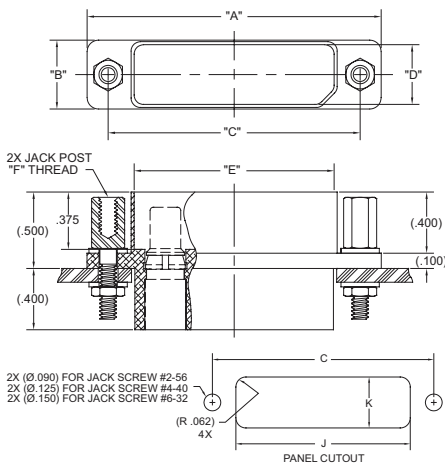
Size 9 Twinax/Quadax/Split Pair Quadax Non-Keyed D-Sub Shells

Contacts Not Included

Plug

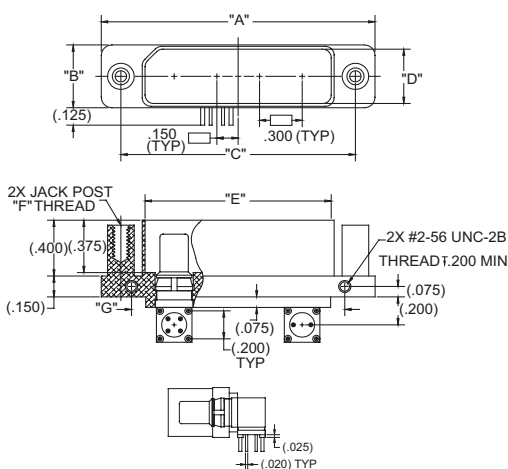


Part Number	Contacts	A	B	C	D	E	F	G	H
012700-2002	2	1.325	0.450	1.050	0.380	0.700	#2-56	0.100	0.400
012700-2003	4	1.925	0.450	1.650	0.380	1.300	#4-40	0.100	0.400
012700-2058	6	2.525	0.450	2.250	0.380	1.900	#4-40	0.100	0.400
012700-2004	8	2.300	0.750	1.900	0.625	1.450	#4-40	0.100	0.400
012700-2059	10	2.600	0.750	2.200	0.625	1.750	#4-40	0.100	0.400
012700-2060	12	2.900	0.750	2.550	0.625	2.050	#6-32	0.150	0.350
012700-2005	16	3.600	0.750	3.150	0.625	2.650	#6-32	0.150	0.350
012700-2006	21	4.350	0.750	3.900	0.625	3.400	#6-32	0.150	0.350



Cable Mount Receptacle

Part Number	Contacts	A	B	C	D	E	F	J	K
012800-3002	2	1.325	0.450	1.050	0.390	0.710	#2-56	0.715	0.415
012800-3003	4	1.925	0.450	1.650	0.390	1.310	#4-40	1.315	0.415
012800-3058	6	2.525	0.450	2.250	0.390	1.910	#4-40	1.915	0.415
012800-3004	8	2.300	0.750	1.900	0.635	1.460	#4-40	1.465	0.415
012800-3059	10	2.600	0.750	2.200	0.635	1.760	#4-40	1.765	0.415
012800-3060	12	2.900	0.750	2.550	0.635	2.060	#6-32	2.065	0.660
012800-3005	16	3.600	0.750	3.150	0.635	2.660	#6-32	2.665	0.660
012800-3006	21	4.350	0.750	3.900	0.635	3.410	#6-32	3.410	0.660



Right Angle PC Tail Mount

Contacts are included

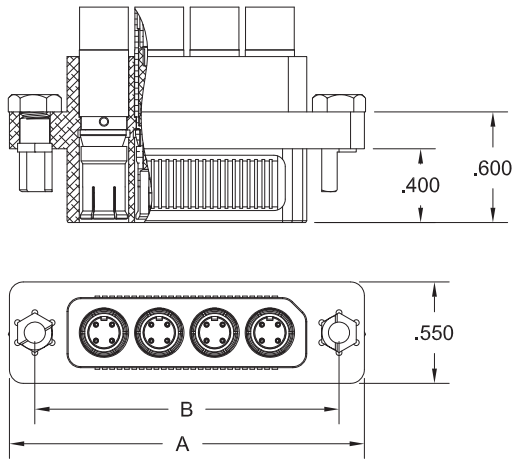
Part Number	Contacts	A	B	C	D	E	F	G
012817-1112 Twinax	2	1.325	0.450	1.050	0.390	0.710	#2-56	0.900
012817-1113 Twinax	4	1.925	0.450	1.650	0.390	1.310	#4-40	1.500
012817-1102 Quadax	2	1.325	0.450	1.050	0.390	0.710	#2-56	0.900
012817-1103 Quadax	4	1.925	0.450	1.650	0.390	1.310	#4-40	1.500

Notes:

1. Dimensions are in inches
2. All specifications are subject to change without notice

Size 9 Twinax/Quadax/Split Pair Quadax Keyed D-Sub Shells

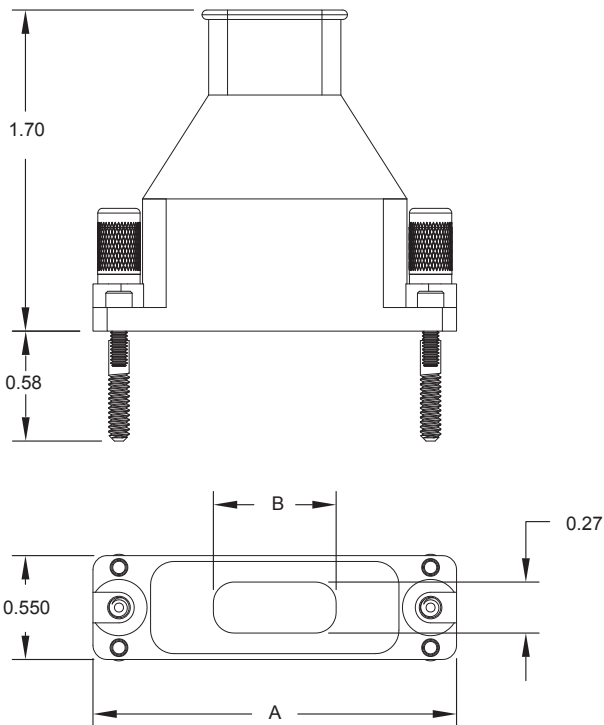
Contacts Not Included



Plug

Requires use of keyed backshell

Part Number	Contacts	A	B
052800-2002	2	1.325	1.050
052800-2004	4	1.925	1.650
052800-2006	6	2.525	2.250
052800-2008	8	3.125	2.850



Backshell

Requires use of keyed plug

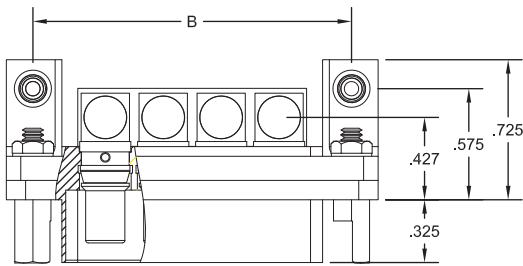
Part Number	Contacts	A	B
057330-2102	2	1.325	0.325
057330-2104	4	1.925	0.650
057330-2106	6	2.525	0.975
057330-2108	8	3.125	1.300

Notes:

1. Dimensions are in inches
2. All specifications are subject to change without notice

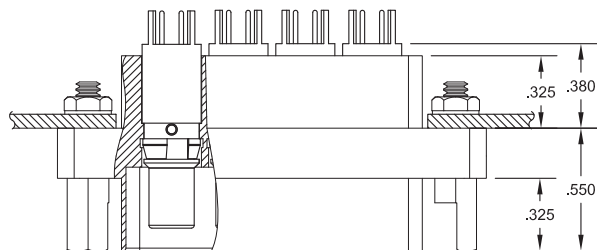
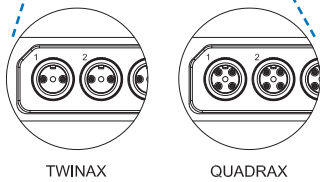
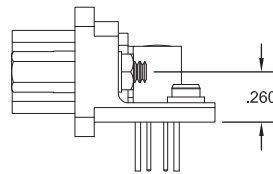
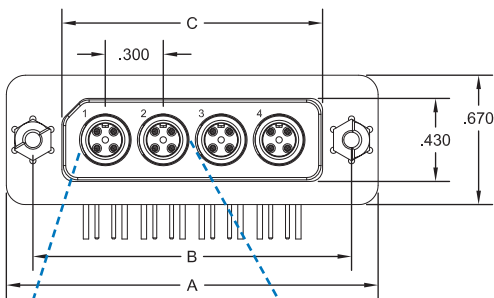
Size 9 Twinax/Quadax/Split Pair Quadax Keyed PCB Mount D-Sub Shells

Includes Contacts



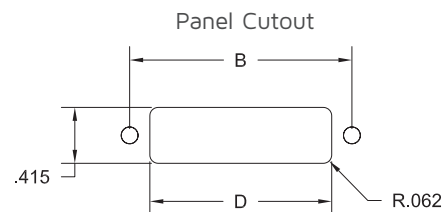
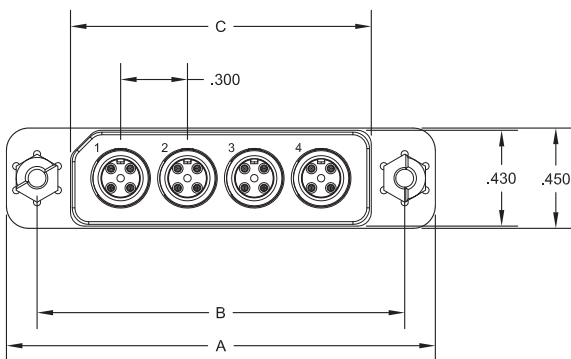
Right Angle Receptacle

Twinax	Quadax	Contacts	A	B	C
052717-1002	052717-1102	2	1.325	1.050	0.750
052717-1004	052717-1104	4	1.925	1.650	1.350
052717-1006	052717-1106	6	2.525	2.250	1.950
052717-1008	052717-1108	8	3.125	2.850	2.550



Straight, Front Panel Mount Receptacle

Twinax	Quadax	Contacts	A	B	C	D
052717-3002	052717-3102	2	1.325	1.050	0.750	0.715
052717-3004	052717-3104	4	1.925	1.650	1.350	1.315
052717-3006	052717-3106	6	2.525	2.250	1.950	1.915
052717-3008	052717-3108	8	3.125	2.850	2.550	2.515



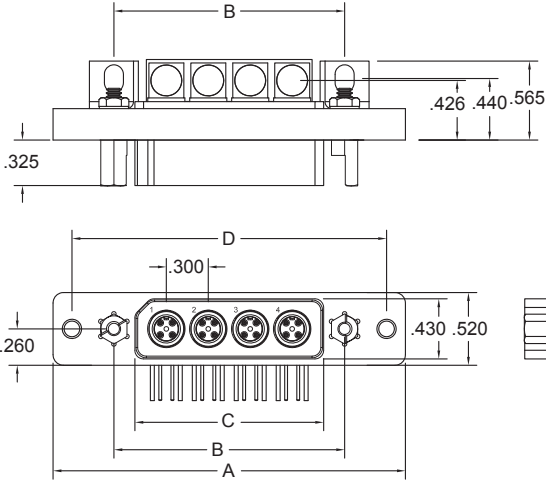
Notes:

1. Dimensions are in inches
2. All specifications are subject to change without notice

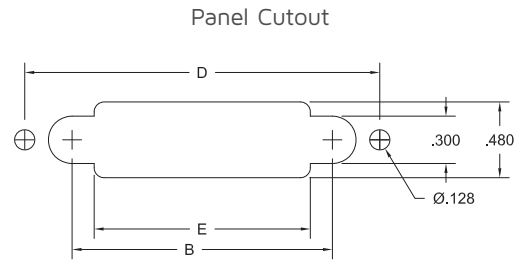
Size 9 Twinax/Quadax/Split Pair Quadax Keyed PCB Mount D-Sub Shells

Includes Contacts

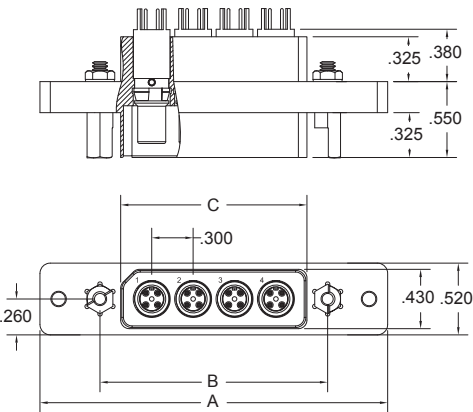
Right Angle, Rear Panel Mount Receptacle



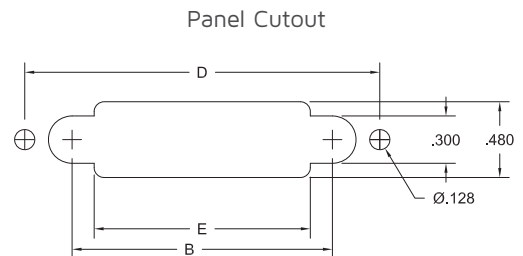
Twinax	Quadax	Contacts	A	B	C	D	E
052717-1012	052717-1112	2	1.920	1.050	0.750	1.650	0.770
052717-1014	052717-1114	4	2.520	1.650	1.350	2.250	1.370
052717-1016	052717-1116	6	3.120	2.250	1.950	2.850	1.970
052717-1018	052717-1118	8	3.720	2.850	2.550	3.450	2.570



Straight, Rear Panel Mount Receptacle



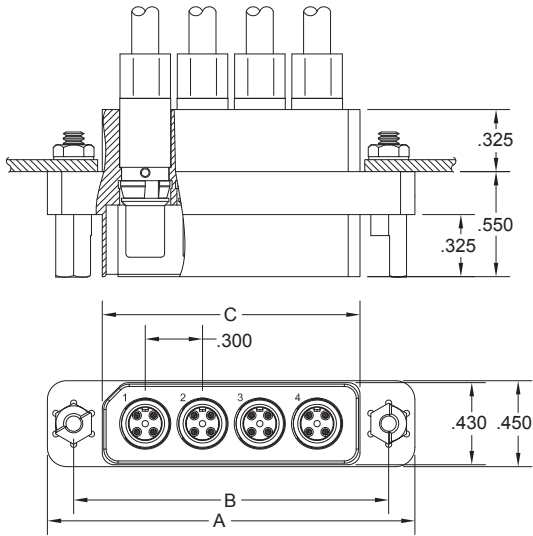
Twinax	Quadax	Contacts	A	B	C	D	E
052717-3012	052717-3112	2	1.920	1.050	0.750	1.650	0.770
052717-3014	052717-3114	4	2.520	1.650	1.350	2.250	1.370
052717-3016	052717-3116	6	3.120	2.250	1.950	2.850	1.970
052717-3018	052717-3118	8	3.720	2.850	2.550	3.450	2.570



- Notes:**
1. Dimensions are in inches
 2. All specifications are subject to change without notice

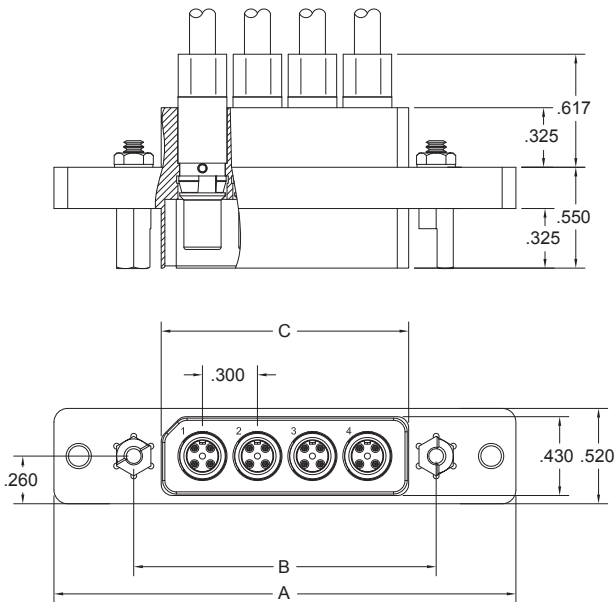
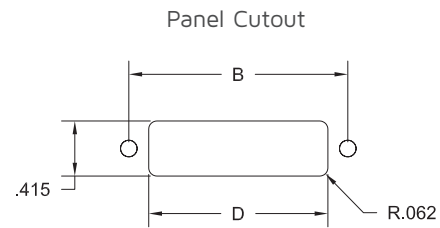
Size 9 Twinax/Quadax/Split Pair Quadax Keyed Cable Mount D-Sub Shells

Contacts Not Included



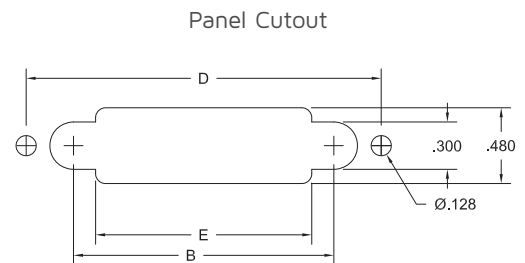
Front Panel Mount Receptacle

Part Number	Contacts	A	B	C	D
052700-3002	2	1.325	1.050	0.750	0.715
052700-3004	4	1.925	1.650	1.350	1.315
052700-3006	6	2.525	2.250	1.950	1.915
052700-3008	8	3.125	2.850	2.550	2.515



Rear Panel Mount Receptacle

Part Number	Contacts	A	B	C	D	E
052700-3012	2	1.920	1.050	0.750	1.650	0.770
052700-3014	4	2.520	1.650	1.350	2.250	1.370
052700-3016	6	3.120	2.250	1.950	2.850	1.970
052700-3018	8	3.720	2.850	2.550	3.450	2.570



Notes:

1. Dimensions are in inches
2. All specifications are subject to change without notice

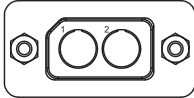
Insert Arrangements

For Keyed & Non-Keyed Shells

Size 9 Non-Keyed Arrangements

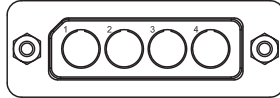
Shell Size 1
Arrangement 1-2

2 #9 Quadrax/Twinax Contacts



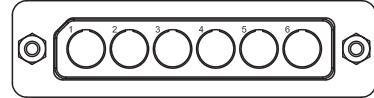
Shell Size 2
Arrangement 2-4

4 #9 Quadrax/Twinax Contacts



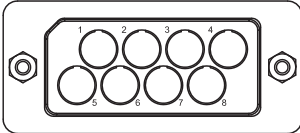
Shell Size 3
Arrangement 3-6

6 #9 Quadrax/Twinax Contacts



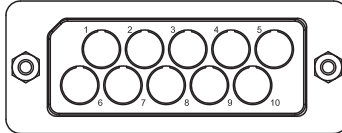
Shell Size 5
Arrangement 5-8

8 #9 Quadrax/Twinax Contacts



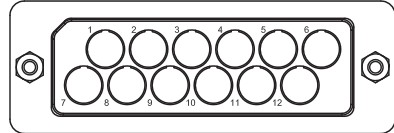
Shell Size 6
Arrangement 6-10

10 #9 Quadrax/Twinax Contacts



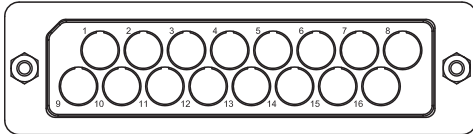
Shell Size 7
Arrangement 7-12

12 #9 Quadrax/Twinax Contacts



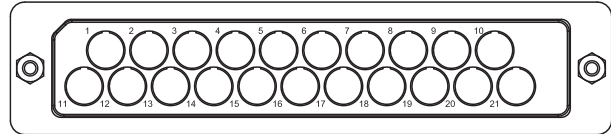
Shell Size 8
Arrangement 8-16

16 #9 Quadrax/Twinax Contacts



Shell Size 9
Arrangement 9-21

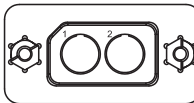
21 #9 Quadrax/Twinax Contacts



Size 9 Keyed Arrangements

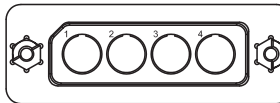
Shell Size 1
Arrangement 1-2

2 #9 Quadrax/Twinax Contacts



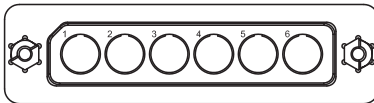
Shell Size 2
Arrangement 2-4

4 #9 Quadrax/Twinax Contacts



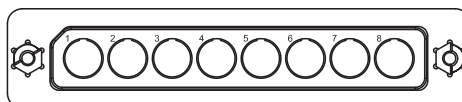
Shell Size 3
Arrangement 3-6²

6 #9 Quadrax/Twinax Contacts



Shell Size 4
Arrangement 4-8

8 #9 Quadrax/Twinax Contacts



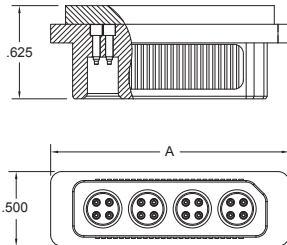
Notes:

1. Please consult factory for environmentally sealed and backshell connectors
2. Six position keyed jackpost allows 36 possible keying combinations

Tools & Accessories

Soldering Alignment Tool

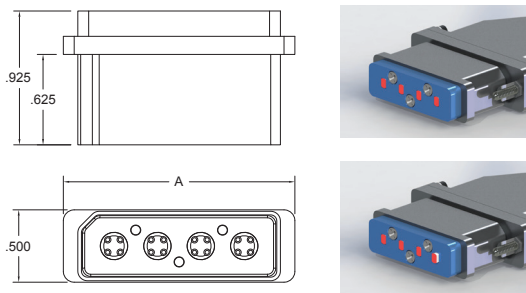
Use to align contacts properly when soldering receptacle with PC tails



Part Number	Description	A
ST-1031	2 Channel Quadrax Alignment Tool	1.000
ST-1032	2 Channel Twinax Alignment Tool	1.000
ST-1033	4 Channel Quadrax Alignment Tool	1.600
ST-1034	4 Channel Twinax Alignment Tool	1.600
ST-1035	6 Channel Quadrax Alignment Tool	2.200
ST-1036	6 Channel Twinax Alignment Tool	2.200
ST-1037	8 Channel Quadrax Alignment Tool	2.800
ST-1038	8 Channel Twinax Alignment Tool	2.800

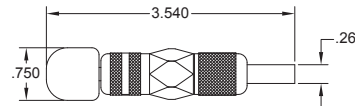
Plug Inspection Tool

Use to inspect the completed plug assembly to ensure all pins are correctly aligned



Insert Removal Tool

Use to remove size 9 pin and socket contacts from the plug or receptacle bodies



Part Number
SIR-027

Cable Stripping Gage

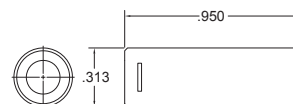
Use to trim and strip the Quadrax and Twinax cables to the proper length¹



Part Number	Description	A
T-2177-1	Dielectric Cable Stripping Gage	0.175
T-2177-2	Wire Cable Stripping Gage	0.340

Insert Removal Tool

Use to verify the proper trim length and consistency during assembly¹



Part Number
T-2172

Notes:

1. Consult factory for Assembly Instructions AI-5001/5002

How To Order



For custom products only. Standard part numbers are listed throughout the brochure.

RDC9

1



2



3



4



5



6



7



8

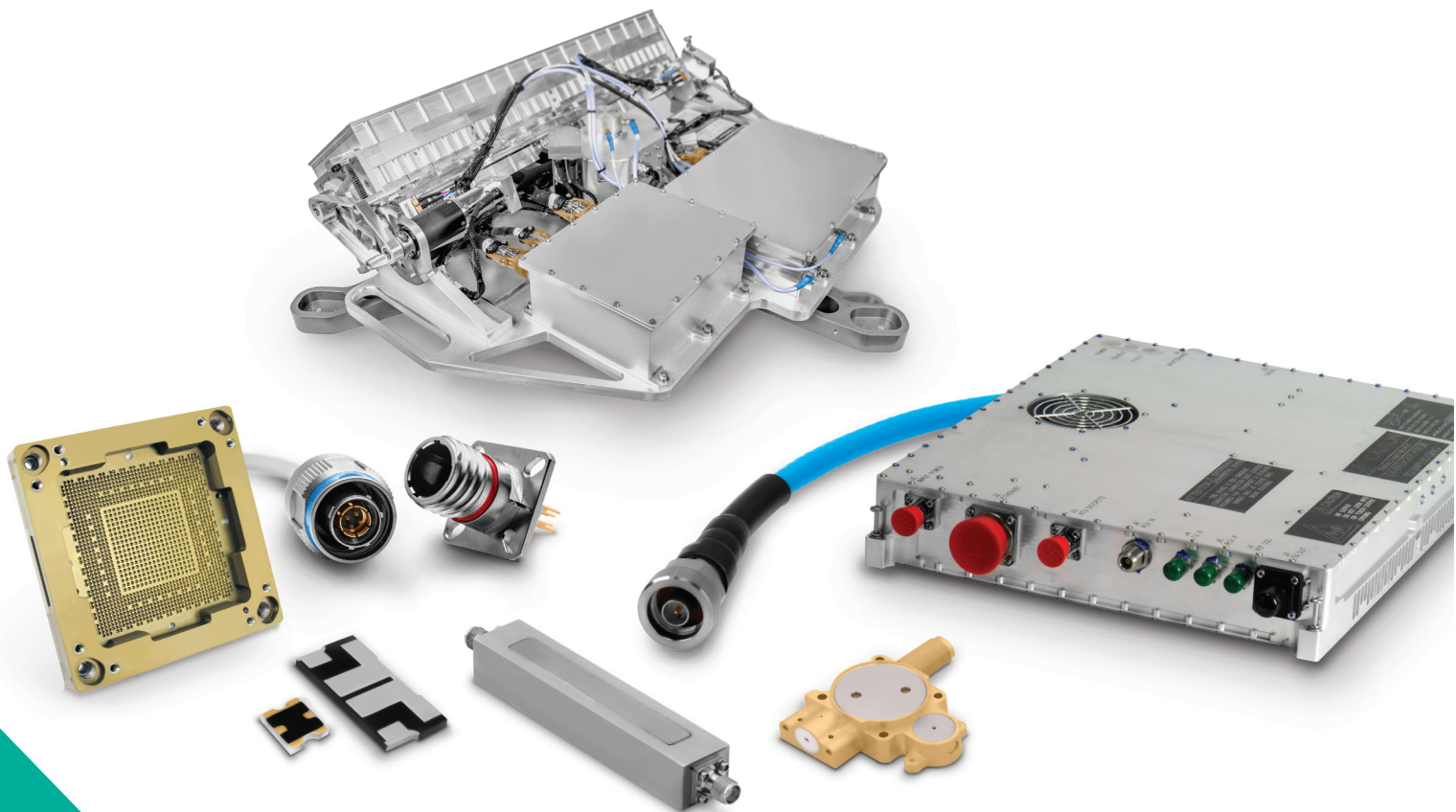
1 Prefix	RDC9 Rugged D-Sub Size 9				
2 Shell	<table border="0"> <tr> <td>RN Receptacle, Non-Keyed</td> <td>RK Receptacle, Keyed</td> </tr> <tr> <td>PN Plug, Non-Keyed</td> <td>PK Plug, Keyed</td> </tr> </table>	RN Receptacle, Non-Keyed	RK Receptacle, Keyed	PN Plug, Non-Keyed	PK Plug, Keyed
RN Receptacle, Non-Keyed	RK Receptacle, Keyed				
PN Plug, Non-Keyed	PK Plug, Keyed				
3 Insert Arrangement	2 4 6 8 10 12 16 or 21 Way				
4 Plating	C Cadmium (Yellow Chromate) N Electroless Nickel				
5 Contact Type	P Pin S Socket				
6 Contact Termination	C Crimp S Straight PC Tail RA Right Angle PC Tail				
7 Contact⁽¹⁾	T Twinax Q Quadrax S Split pair Quadrax				
8 Cable Group	Twinax Cable Options 2 540-1086-000 3 540-1161-000 3 4 540-1167-000 0 No Cable Required				
	Quadrax Cable Options 3 6 540-1183-000 0 No Cable Required				
	Split Pair Quadrax Cable Options⁽²⁾ 0 No Cable Required				

Notes:

(1) For mixed configurations contact us

(2) See tables page 6 or contact us

Product Portfolio



- Antenna Systems
- Cable Assemblies
- Connector Solutions
 - Ferrite Components & Assemblies
 - RF Filter Components & Assemblies
 - Integrated Microwave Assemblies
 - Millimeter-Wave Solutions
 - RF Components
 - Test Sockets and WLCSP Probe Heads
 - Time & Frequency Systems

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