

Rugged D-Sub Connector Series



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 quadrax 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 quadrax 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.

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 quadrax. 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: 2, 4, 6, 8, 12, 16, 21 way; hybrid options available
- Multiple impedances available: 100 ohm, 110 ohm, and 150 ohm
- Data rates up to 6.25 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

Benefits

- Product versatility/modularity
- Unparalleled immunity to shock and vibration
- Outstanding space savings on narrow mounted panels
- Superior mating
- Specifically designed for extreme durability and performance

Technical Characteristics

Mechanical & Environmental

		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

Materials & Finishes

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

Electrical

		Standards
Contact Current Rating	3.0 A max.	—
DWV	500 VDC max.	—
Insulation Resistance	5,000 MΩ min. @ 200 VDC	—
Bandwidth	Up to 3 GHz	—
Data Rates	Exceeding 2 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	

Dimensions

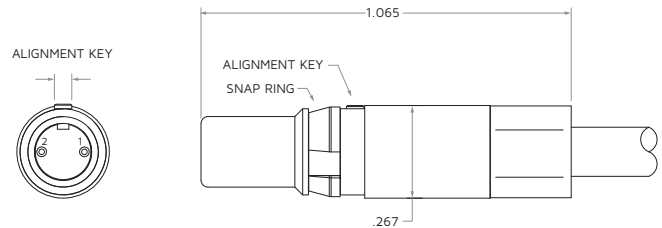
Contacts, Keyed & Non-Keyed Shells

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

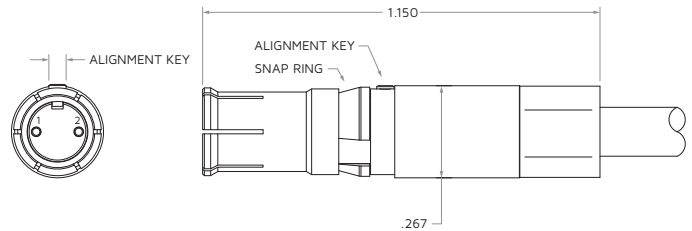


Twinax Socket Contact

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

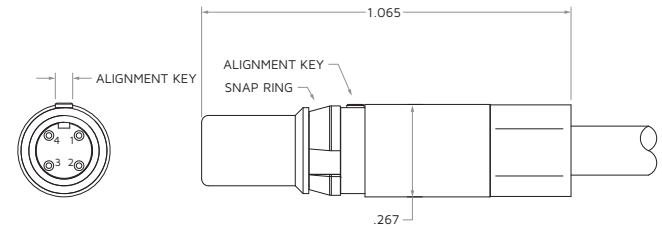


Quadrax Pin Contact

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

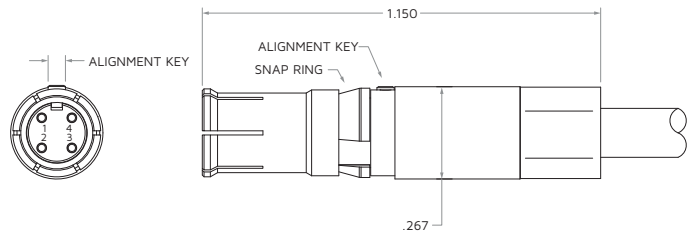


Quadrax Socket Contact

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

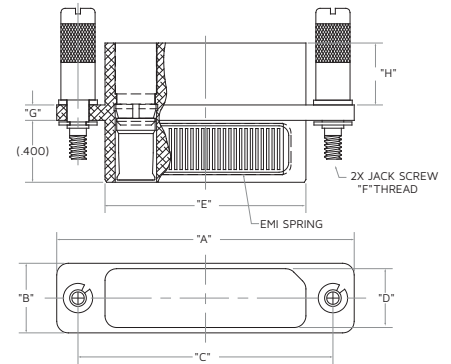


Size 9 Twinax/Quadax Non-Keyed D-Sub Shells

Contacts not included

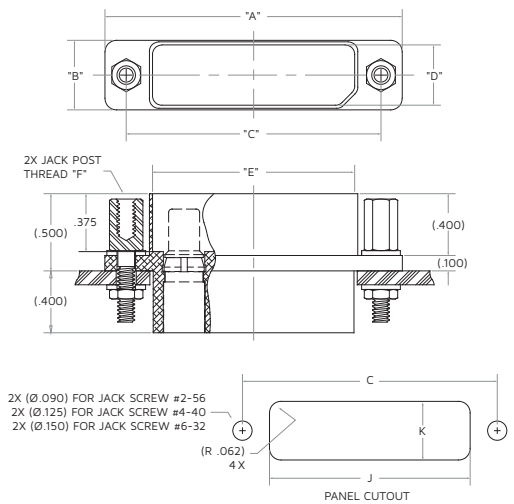
Plug

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

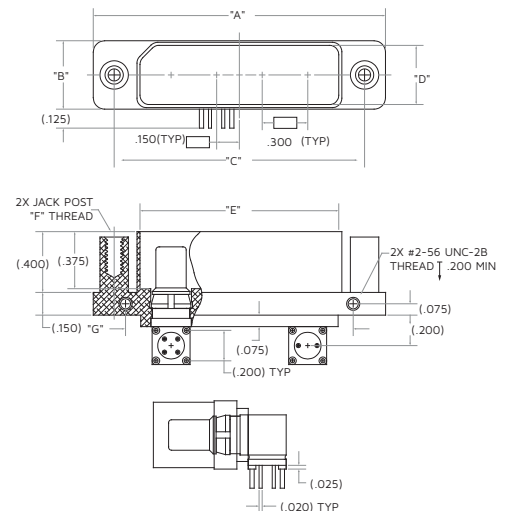
Part Number	Contacts	A	B	C	D	E	F	J	K
012800-3002	2	1.325	0.450	1.050	0.390	0.710	#2-56	0.715	0.415
012800-3003	4	1.925	0.450	1.650	0.390	1.310	#4-40	1.315	0.415
012800-3058	6	2.525	0.450	2.250	0.390	1.910	#4-40	1.915	0.415
012800-3004	8	2.300	0.750	1.900	0.635	1.460	#4-40	1.465	0.415
012800-3059	10	2.600	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



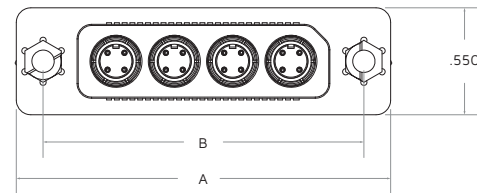
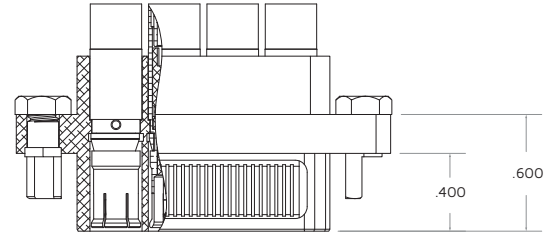
Size 9 Twinax/Quadax Keyed D-Sub Shells

Contacts not included

Plug

Requires use of keyed backshell

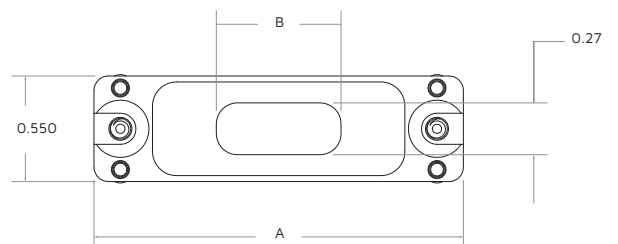
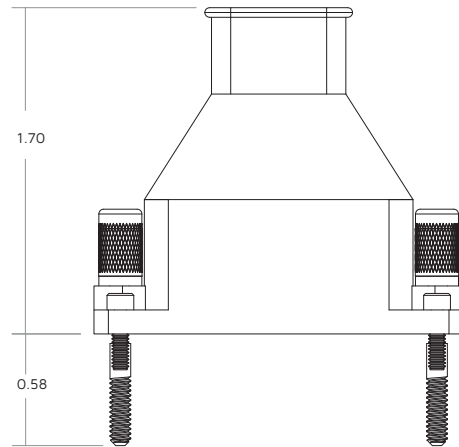
Part Number	Contacts	A	B
052800-2002	2	1.325	1.050
052800-2004	4	1.925	1.650
052800-2006	6	2.525	2.250
052800-2008	8	3.125	2.850



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

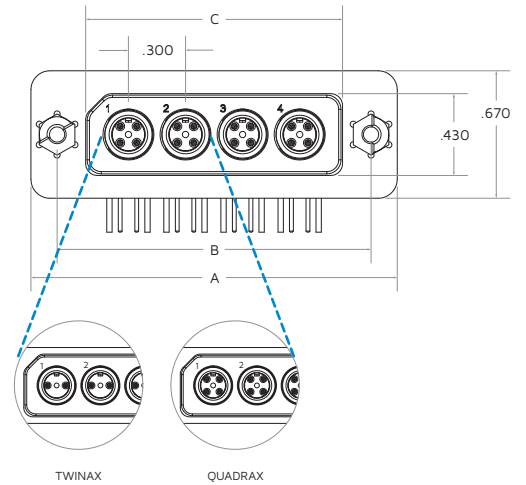
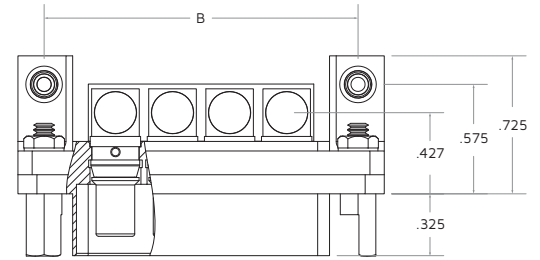
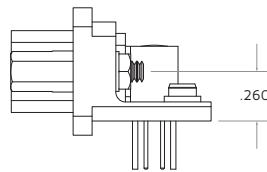


Size 9 Twinax/Quadax Keyed PCB Mount D-Sub Shells

Includes contacts

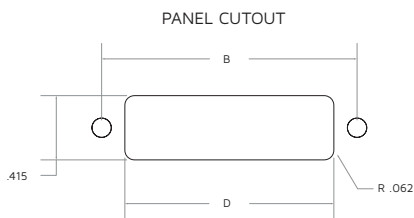
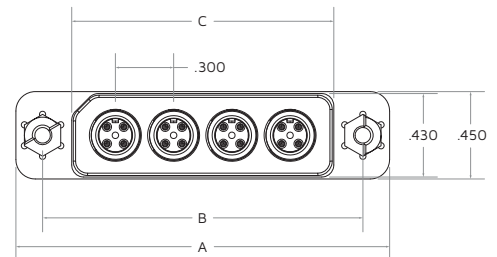
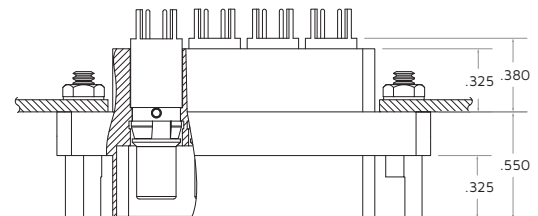
Right Angle Receptacle

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

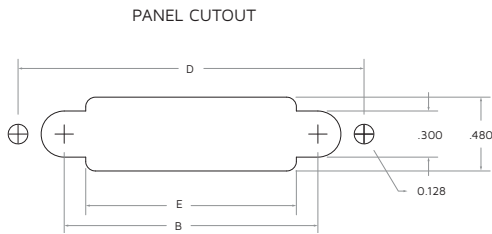
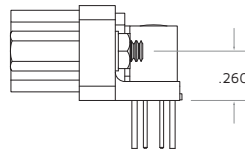
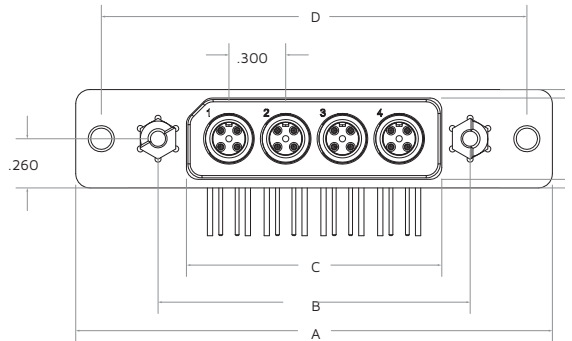
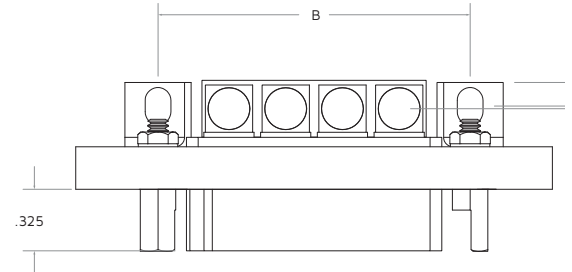


Size 9 Twinax/Quadax Keyed PCB Mount D-Sub Shells

Includes contacts

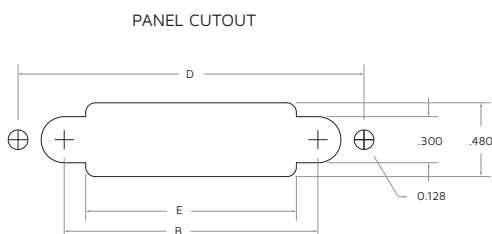
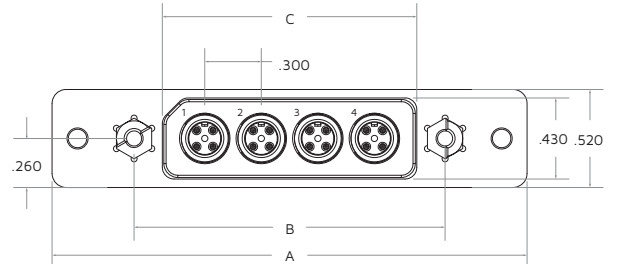
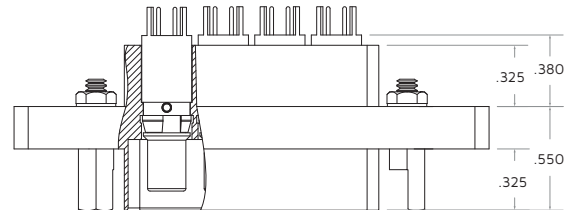
Right Angle, Rear Panel Mount Receptacle

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

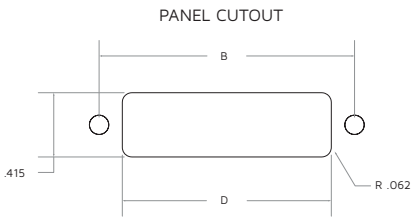
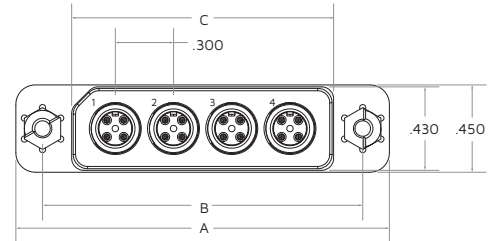
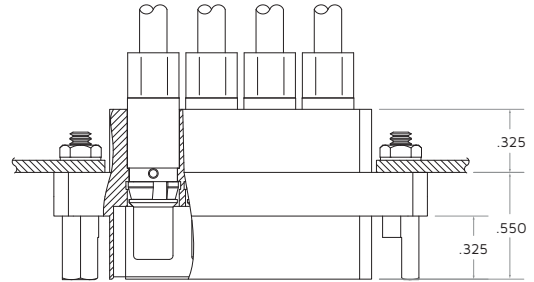


Size 9 Twinax/Quadax Keyed Cable Mount D-Sub Shells

Contacts not included

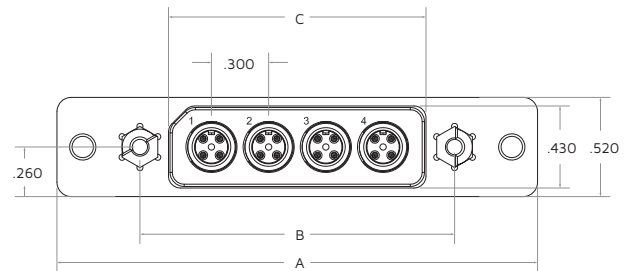
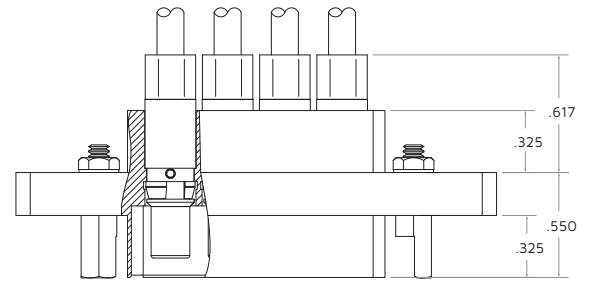
Front Panel Mount Receptacle

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

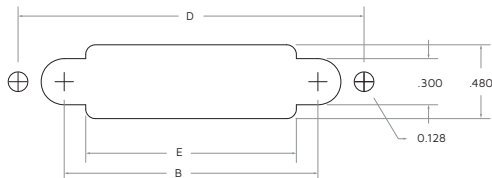


Rear Panel Mount Receptacle

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



PANEL CUTOUT



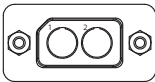
Insert Arrangements

For Keyed & Non-Keyed Shells

Size 9 Non-Keyed Arrangements

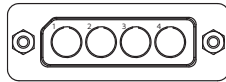
Shell Size 1 Arrangement 1-2

2 #9 Quadrax/Twinax Contacts



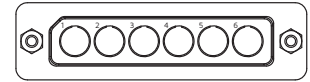
Shell Size 2 Arrangement 2-4

4 #9 Quadrax/Twinax Contacts



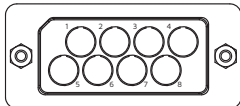
Shell Size 3 Arrangement 3-6

6 #9 Quadrax/Twinax Contacts



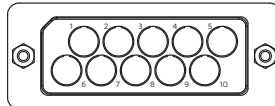
Shell Size 5 Arrangement 5-8

8 #9 Quadrax/Twinax Contacts



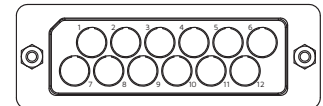
Shell Size 6 Arrangement 6-10

10 #9 Quadrax/Twinax Contacts



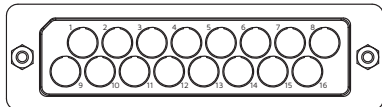
Shell Size 7 Arrangement 7-12

12 #9 Quadrax/Twinax Contacts



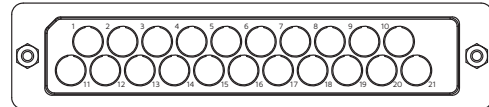
Shell Size 8 Arrangement 8-16

16 #9 Quadrax/Twinax Contacts



Shell Size 9 Arrangement 9-21

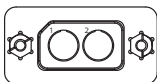
21 #9 Quadrax/Twinax Contacts



Size 9 Keyed Arrangements

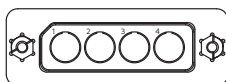
Shell Size 1 Arrangement 1-2

2 #9 Quadrax/Twinax Contacts



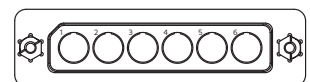
Shell Size 2 Arrangement 2-4

4 #9 Quadrax/Twinax Contacts



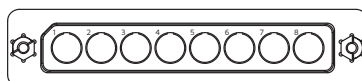
Shell Size 3 Arrangement 3-6ⁱ

6 #9 Quadrax/Twinax Contacts



Shell Size 4 Arrangement 4-8

8 #9 Quadrax/Twinax Contacts

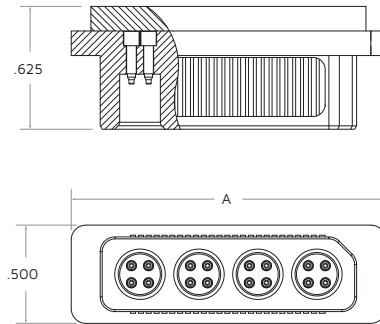


Tools and Accessories

Soldering Alignment Tool

Use to align contacts properly when soldering receptacle with PC tails.

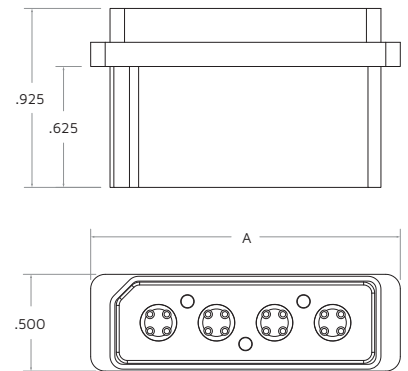
Part Number	Description	A
ST-1031	2 Channel QuadraX Alignment Tool	1.000
ST-1032	2 Channel Twinax Alignment Tool	1.000
ST-1033	4 Channel QuadraX Alignment Tool	1.600
ST-1034	4 Channel Twinax Alignment Tool	1.600
ST-1035	6 Channel QuadraX Alignment Tool	2.200
ST-1036	6 Channel Twinax Alignment Tool	2.200
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.

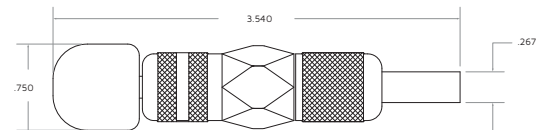
Part Number	Description	A
ST-2031	2 Channel QuadraX Inspection Tool	1.000
ST-2032	2 Channel Twinax Inspection Tool	1.000
ST-2033	4 Channel QuadraX Inspection Tool	1.600
ST-2034	4 Channel Twinax Inspection Tool	1.600
ST-2035	6 Channel QuadraX Inspection Tool	2.200
ST-2036	6 Channel Twinax Inspection Tool	2.200
ST-2037	8 Channel QuadraX Inspection Tool	2.800
ST-2038	8 Channel Twinax Inspection Tool	2.800



Insert Removal Tool

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

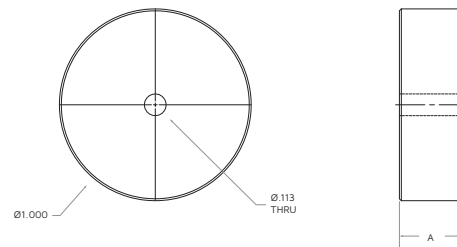
Part Number
SIR-027



Cable Stripping Gage

Use to trim and strip the QuadraX and Twinax cables to the proper length¹.

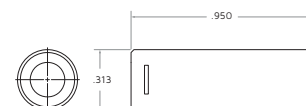
Part Number	Description	A
T-2177-1	Dielectric Cable Stripping Gage	0.175
T-2177-2	Wire Cable Stripping Gage	0.340



Insert Removal Tool

Use to verify the proper trim length and consistency during assembly.

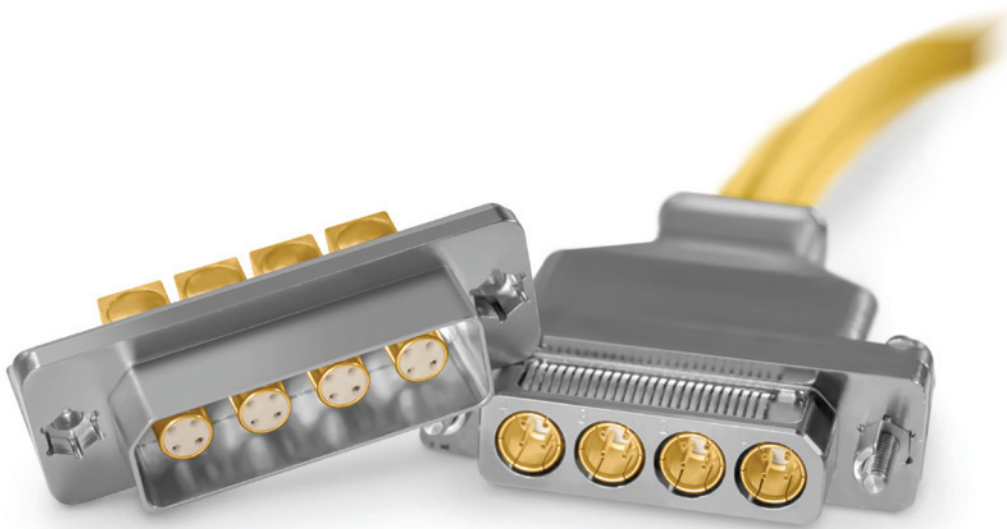
Part Number
T-2172



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

Ordering

Please, contact our Sales office or visit our website for quotations.



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