SSMC Connectors

Microminiature, Threaded Mating, High Performance to 12.4 GHz

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PDF Volume 1

GLOBAL MANUFACTURER

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General Description

Delta SSMC connectors are microminiature, 50Ω impedance connectors with 6-40 threaded coupling. SSMC connectors are ideal for use in limited-space applications that require the rugged design of a threaded coupling interface. They are best suited for use with semi-rigid cables or miniature flexible cables in demanding applications up to 12.4 Ghz. Our extensive line of receptacles contains a variety of mounting configurations and contact / insulator terminations perfect for any packaging requirements. Our adapters are available in both in-series and between series. We also offer an adapter with a slide-on version of the SSMC interface (See page 12) that is ideal for testing components; reducing wear and tear on mounted connectors and saving time on mating and unmating of test cables.

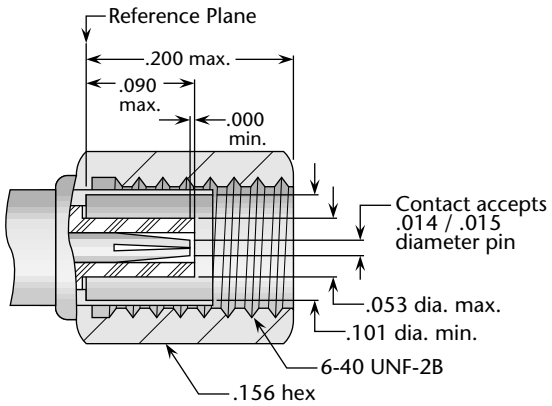
Delta's SSMC connectors are designed in accordance with IEC 169-20, and are intermateable with other manufacturer's SSMC connectors. However, through our unique internal construction design, precision machining capabilities, and Lean Manufacturing processes, we are able to offer the highest quality components while optimizing both cost and lead time.

These connectors are machined to exacting tolerances and the highest quality standards on modern CNC turning centers, and assembly is tightly controlled and monitored to ensure peak consistency of performance from unit to unit.

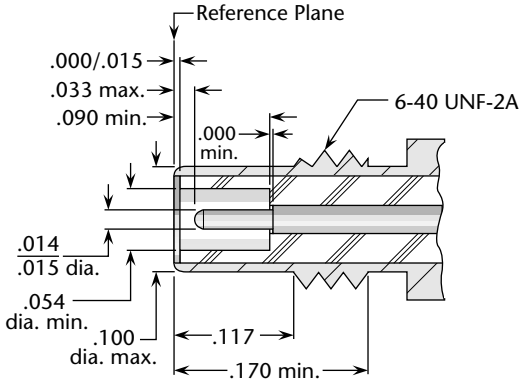
Contents (Click on any line to go to the indicated page.)

SSMC Interfaces

Plug Interface *



Jack Interface *



*Some proportions altered to illustrate detail.

SSMC Specifications*

Electrical:

Nominal Impedance: 50 ohms.

Frequency Range: DC–12.4 GHz.

Voltage Rating: 250 Volts RMS @ sea level;
600 Volts RMS @ 70,000 feet.

VSWR
RG-178 cable:
Straight connectors, 1.20 + (.020 x F [GHz]).
Right angle connectors, 1.20 + (.030 x F [GHz]).

RG-316 cable:
Straight connectors, 1.25 + (.020 x F [GHz]).
Right angle connectors, 1.25 + (.030 x F [GHz]).

.085" semi-rigid cable:
Straight connectors, 1.20 + (.015 x F [GHz]).
Right angle connectors, 1.20 + (.025 x F [GHz]).

Insertion Loss: .30 dB maximum @1.5 GHz.

RF Hipot: 400 Volts RMS @ 5 MHz.

Insulation Resistance: 1,000 megohms minimum.

RF Leakage: -50 dB minimum @ 2–3 GHz.

Contact Resistance: Center contact: 6.0 milliohms maximum;
Outer contact: 1.5 milliohms maximum.

All specifications are in accordance with IEC 169-20 and (as applicable) comparative MIL-PRF-39012 specifications for SSMB connectors.

*These specifications are typical and may not apply to all connectors. Detailed specifications for individual connectors are available on request.

Mechanical:

Force to Engage: 16 inch-ounces torque maximum.

Coupling Nut Retention: 25 pounds minimum.

Contact Retention: 2 pounds axial force minimum.

Durability: 500 mating cycles minimum.

Mating Torque: 28–32 inch-ounces.

Materials/Finishes:

Insulators:
Teflon TFE per ASTM D4894.

Contacts: Beryllium copper (Alloy C17300) per ASTM B196.

Contact Plating: Gold per ASTM B488.

Other Metal Parts: Brass per ASTM B16, gold plated per ASTM B488; or stainless steel per ASTM A582, plated gold per ASTM B488 or passivated per SAE AMS-A2700.

Gaskets: Silicone rubber per A-A-59588.

Environmental:

Operating Temperature: -65 to +165˚ C.

Vibration: Per MIL-STD-202, Method 204, condition D.

Corrosion (Salt Atmosphere):
Per MIL-STD-202, Method 101, test condition B.

Mechanical Shock: Per MIL-STD-202, Method 213, 75G.

Cable Plugs—For Flexible and Semi-Rigid Cable

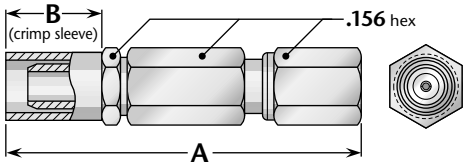


Figure 1
(Crimp type for flexible cable)

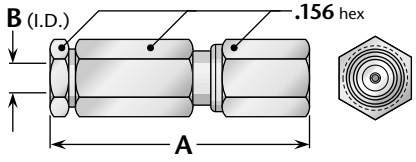


Figure 2
(Solder type for semi-rigid cable)

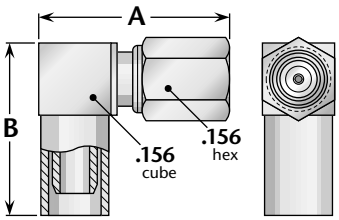


Figure 3
(Crimp type for flexible cable)

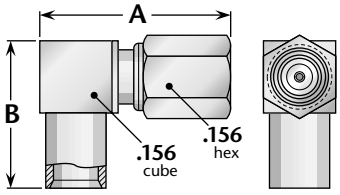


Figure 4
(Solder type for semi-rigid cable)

Straight Plugs

Cable Group	Figure	Dimensions		Plating		Delta P/N	Assembly Procedure/ Trim Code
		A	B	Body	Contact		
9	1	.740	.200	Gold	Gold (C)	2403-037-G001	A/01
10	1	.740	.200	Gold	Gold (C)	2403-100-G001	A/01
11	1	.740	.200	Gold	Gold (C)	2403-038-G001	A/01
14	2	.540	.090	Gold	Gold (C)	2403-025-G003	C/01
32	2	.540	.050	Gold	Gold (C)	2403-111-G003	C/01

Right Angle Plugs

Cable Group	Figure	Dimensions		Plating		Delta P/N	Assembly Procedure/ Trim Code
		A	B	Body	Contact		
9	3	.420	.355	Gold	Gold (C)	2407-037-G001-2	B/01
10	3	.420	.355	Gold	Gold (C)	2407-100-G001-1	B/01
11	3	.420	.355	Gold	Gold (C)	2407-038-G001-3	B/01
14	4	.420	.300	Gold	Gold (C)	2405-025-G003	D/01
32	4	.420	.300	Gold	Gold (C)	2405-111-G003	D/01

Cable Groups		
9: RG-174, 188, 188A, 316; M17/94, 113, 119, 138, 172, 173, 196	10: Double-Shielded RG-174, 316; M17/152	
11: RG-178, 178A, 178B, 196, 196A; , M17/93	14: .085" semi-rigid; RG-405; M17/133	32: .047" semi-rigid; M17/151

(C) in contact plating column indicates captive contact. • See pages 14-15 for assembly instructions.

Cable Jacks—For Flexible and Semi-Rigid Cable

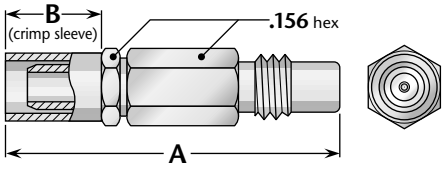


Figure 1
(Crimp type for flexible cable)

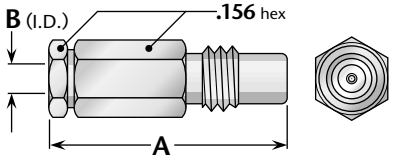


Figure 2
(Solder type for semi-rigid cable)

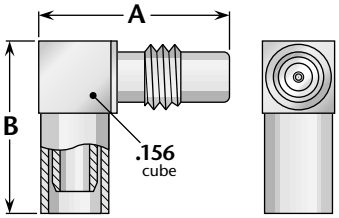


Figure 3
(Crimp type for flexible cable)

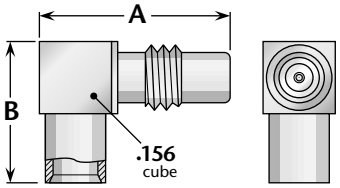


Figure 4
(Solder type for semi-rigid cable)

Straight Jacks

Cable Group	Figure	Dimensions		Plating		Delta P/N	Assembly Procedure/ Trim Code
		A	B	Body	Contact		
9	1	.700	.200	Gold	Gold (C)	2408-037-G001	A/01
10	1	.700	.200	Gold	Gold (C)	2408-100-G001	A/01
11	1	.700	.200	Gold	Gold (C)	2408-038-G001	A/01
14	2	.500	.090	Gold	Gold (C)	2408-025-G003	C/01
32	2	.500	.050	Gold	Gold (C)	2408-111-G003	C/01

Right Angle Jacks

Cable Group	Figure	Dimensions		Plating		Delta P/N	Assembly Procedure/ Trim Code
		A	B	Body	Contact		
9	3	.400	.355	Gold	Gold (C)	2478-037-G001-1	B/01
10	3	.400	.355	Gold	Gold (C)	2478-100-G001-1	B/01
11	3	.400	.355	Gold	Gold (C)	2478-038-G001	B/01
14	4	.400	.300	Gold	Gold (C)	2478-025-G003	D/01
32	4	.400	.300	Gold	Gold (C)	2478-111-G003	D/01

Cable Groups		
9: RG-174, 188, 188A, 316; M17/94, 113, 119, 138, 172, 173, 196	10: Double-Shielded RG-174, 316; M17/152	
11: RG-178, 178A, 178B, 196, 196A; , M17/93	14: .085" semi-rigid; RG-405; M17/133	32: .047" semi-rigid; M17/151

(C) in contact plating column indicates captive contact. • See pages 14-15 for assembly instructions.

Bulkhead Mount Cable Jacks—For Flexible and Semi-Rigid Cable

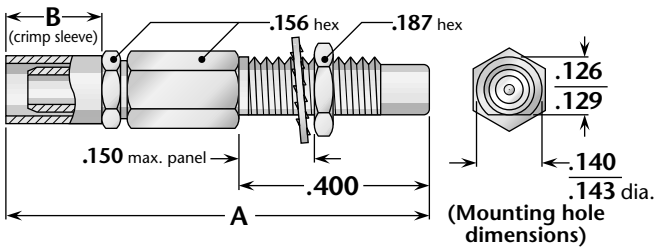


Figure 1
(Crimp type for flexible cable)

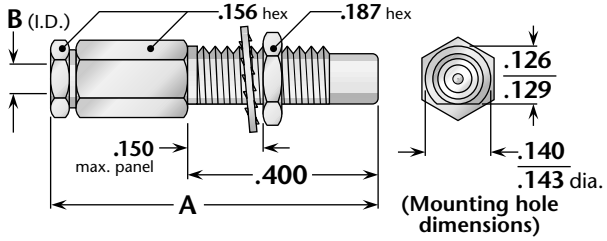


Figure 2
(Solder type for semi-rigid cable)

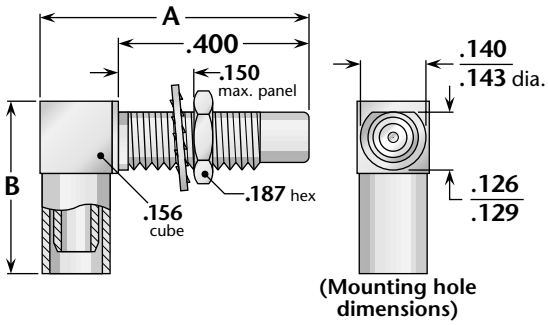


Figure 3
(Crimp type for flexible cable)

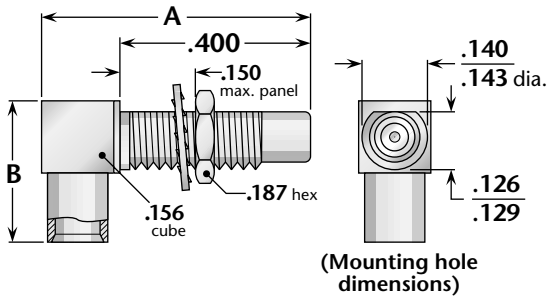


Figure 4
(Solder type for semi-rigid cable)

Straight Bulkhead Jacks

Cable Group	Figure	Dimensions		Plating		Delta P/N	Assembly Procedure/ Trim Code
		A	B	Body	Contact		
9	1	.700	.200	Gold	Gold (C)	2419-037-G911	A/01
10	1	.700	.200	Gold	Gold (C)	2419-100-G911	A/01
11	1	.700	.200	Gold	Gold (C)	2419-038-G911	A/01
14	2	.500	.090	Gold	Gold (C)	2416-025-G913	C/01
32	2	.500	.050	Gold	Gold (C)	2416-111-G913	C/01

Right Angle Bulkhead Jacks

Cable Group	Figure	Dimensions		Plating		Delta P/N	Assembly Procedure/ Trim Code
		A	B	Body	Contact		
9	3	.400	.355	Gold	Gold (C)	2476-037-G911	B/01
10	3	.400	.355	Gold	Gold (C)	2476-100-G911	B/01
11	3	.400	.355	Gold	Gold (C)	2476-038-G911	B/01
14	4	.400	.300	Gold	Gold (C)	2476-025-G913	D/01
32	4	.400	.300	Gold	Gold (C)	2476-111-G913	D/01

Cable Groups		
9: RG-174, 188, 188A, 316; M17/94, 113, 119, 138, 172, 173, 196	10: Double-Shielded RG-174, 316; M17/152	
11: RG-178, 178A, 178B, 196, 196A; , M17/93	14: .085" semi-rigid; RG-405; M17/133	32: .047" semi-rigid; M17/151

(C) in contact plating column indicates captive contact. • See pages 14-15 for assembly instructions.

Bulkhead Receptacles—Front Mount (Nut behind panel)

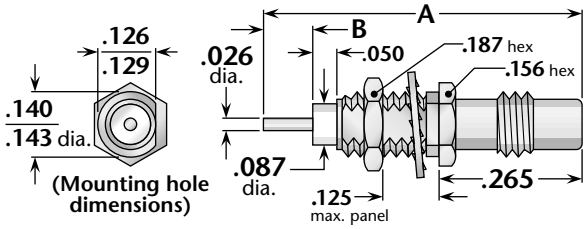


Figure 1 (Post contact)

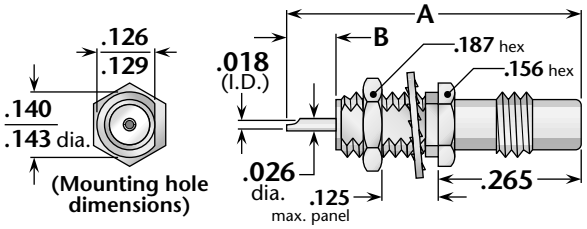


Figure 2 (Solder pot contact))

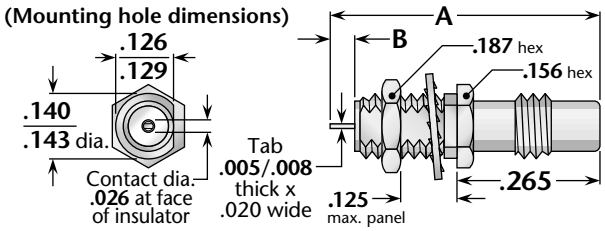


Figure 3 (Tab contact)

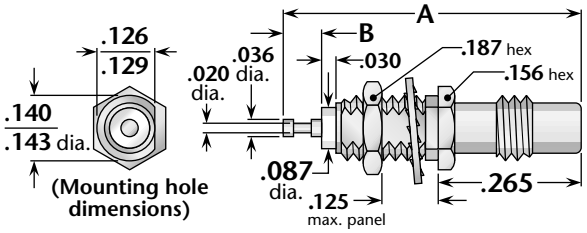


Figure 4 (Turret contact)

Figure	Dimensions		Plating		Delta P/N
	A	B	Body	Contact	
1	.665	.100	Gold (SS)	Gold (C)	2420-000-G911-12
2	.625	.100	Gold (SS)	Gold (C)	2420-000-G911-13
3	.565	.050	Gold (SS)	Gold (C)	2420-000-G911-14
4	.625	.080	Gold (SS)	Gold (C)	2420-000-G911-11

(C) in contact plating column indicates captive contact (Mechanically captivated).
(SS) in body plating column indicates stainless steel body.

Bulkhead Receptacles—Rear Mount (Nut in front of panel)

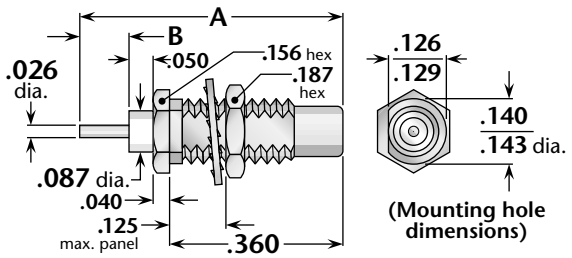


Figure 1 (Post contact)

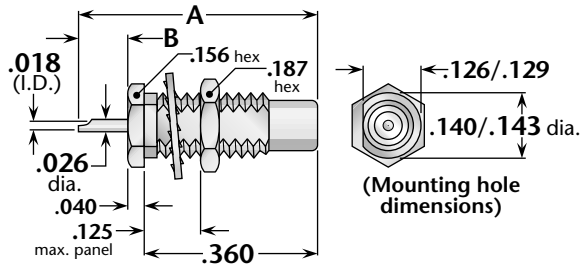


Figure 2 (Solder pot contact))

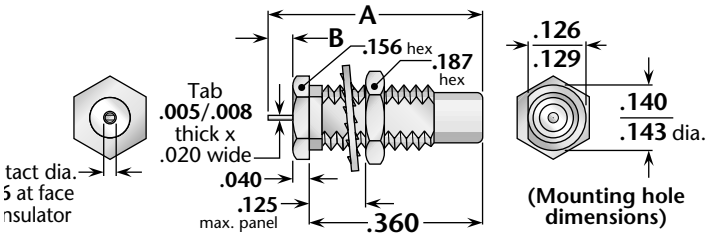


Figure 3 (Tab contact)

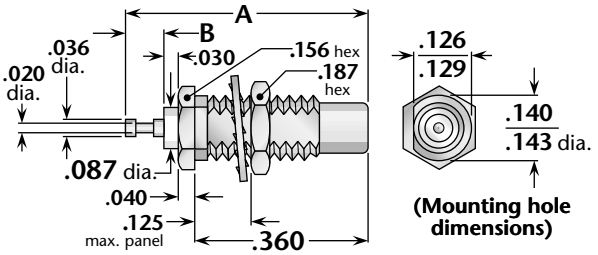


Figure 4 (Turret contact)

Figure	Dimensions		Plating		Delta P/N
	A	B	Body	Contact	
1	.550	.100	Gold (SS)	Gold (C)	2421-000-G911-3
2	.500	.100	Gold (SS)	Gold (C)	2421-000-G911-4
3	.450	.050	Gold (SS)	Gold (C)	2421-000-G911-5
4	.510	.080	Gold (SS)	Gold (C)	2421-000-G911-2

(C) in contact plating column indicates captive contact (Mechanically captivated).
(SS) in body plating column indicates stainless steel body.

Panel Receptacles—4-Hole Flange

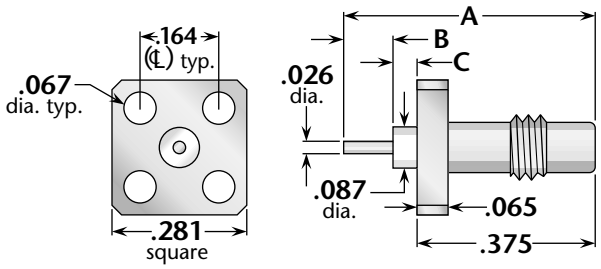


Figure 1 (Post contact)

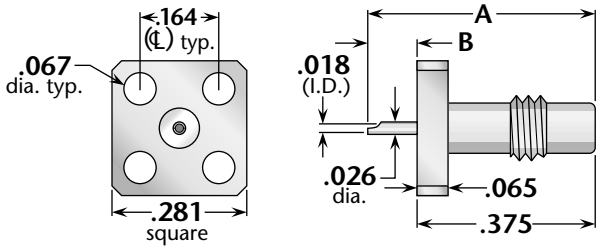


Figure 2 (Solder pot contact))

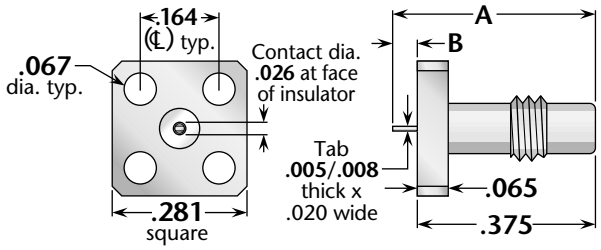


Figure 3 (Tab contact))

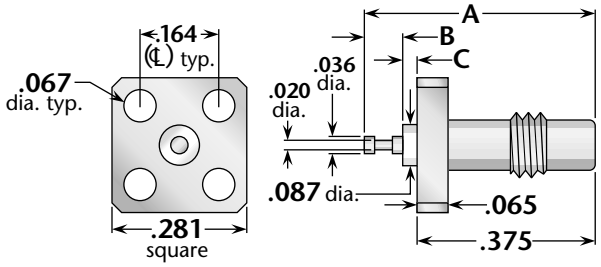


Figure 4 (Turret contact)

Figure	Dimensions		Plating		Delta P/N
	A	B	Body	Contact	
1	.525	.100	Gold	Gold (C)	2458-000-G911-4
2	.475	.100	Gold	Gold (C)	2458-000-G911-5
3	.425	.050	Gold	Gold (C)	2458-000-G911-6
4	.485	.080	Gold	Gold (C)	2458-000-G911-3

(C) in contact plating column indicates captive contact (Mechanically captivated).

Panel Receptacles—2-Hole Flange

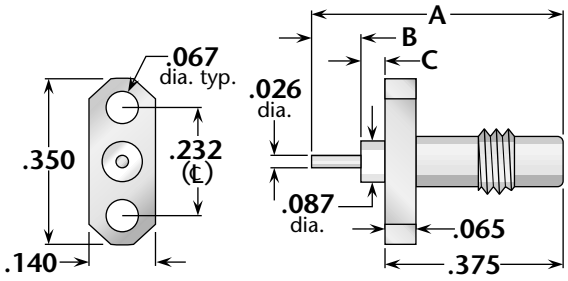


Figure 1 (Post contact)

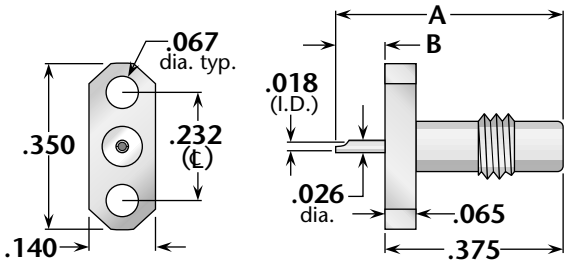


Figure 2 (Solder pot contact))

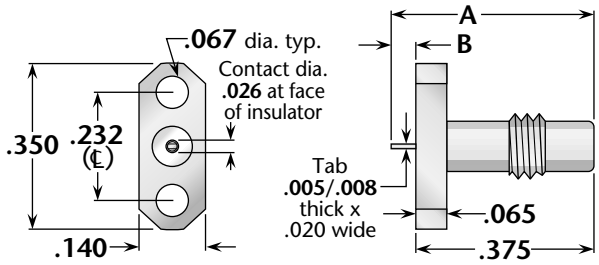


Figure 3 (Tab contact))

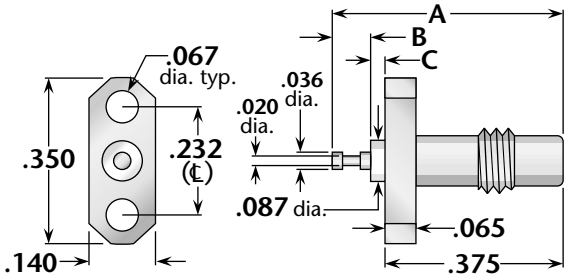


Figure 4 (Turret contact)

Figure	Dimensions		Plating		Delta P/N
	A	B	Body	Contact	
1	.525	.100	Gold	Gold (C)	2458-000-G911-8
2	.475	.100	Gold	Gold (C)	2458-000-G911-9
3	.425	.050	Gold	Gold (C)	2458-000-G911-10
4	.485	.080	Gold	Gold (C)	2458-000-G911-7

(C) in contact plating column indicates captive contact (Mechanically captivated).

P. C. Board Receptacles—Through-Hole and Surface Mount

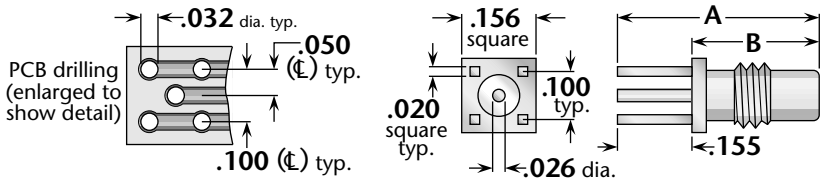


Figure 1 (Through-hole; fits board .125" thick maximum)

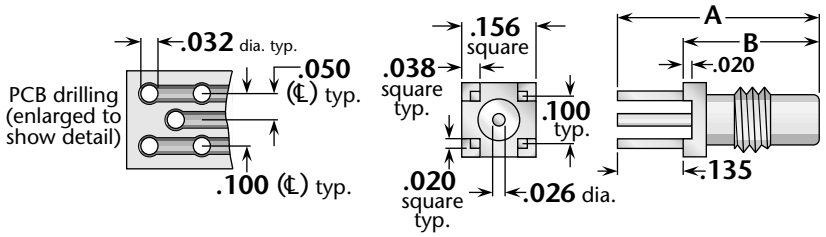


Figure 2 (Through-hole with standoff legs; fits board .125" thick maximum)

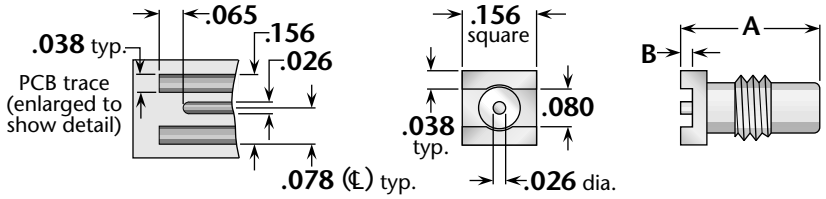


Figure 3 (Surface mount)

Figure	Dimensions		Plating		Delta P/N
	A	B	Body	Contact	
1	.420	.265	Gold	Gold (C)	2467-000-G911-5
2	.420	.285	Gold	Gold (C)	2467-000-G911-6
3	.290	.020	Gold	Gold (C)	2467-000-G911-7

(C) in contact plating column indicates captive contact (Mechanically captivated).
All are available with different leg lengths or other modifications.

Edge Mount P.C. Board Receptacles—Bulkhead Jack

These connectors are designed for use in applications requiring tight vertical spacing of P.C. boards (see illustrations).

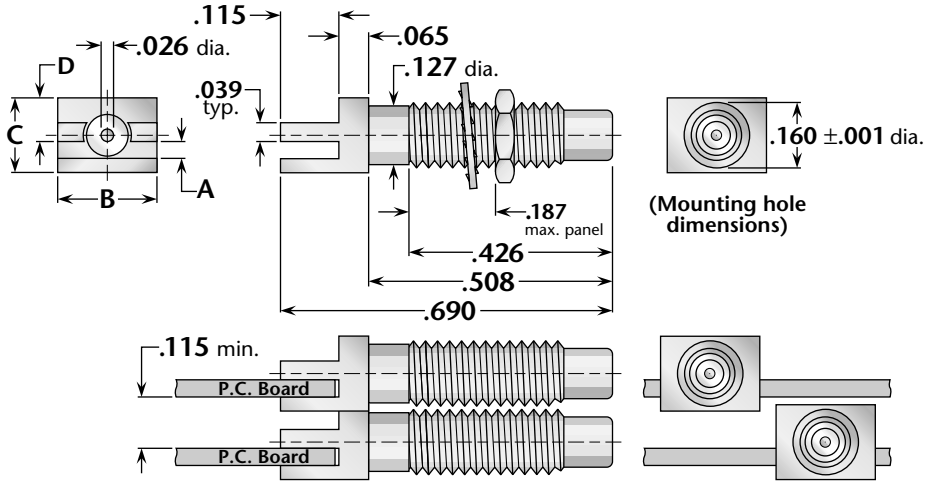


Figure 1 (.115" minimum vertical board spacing)

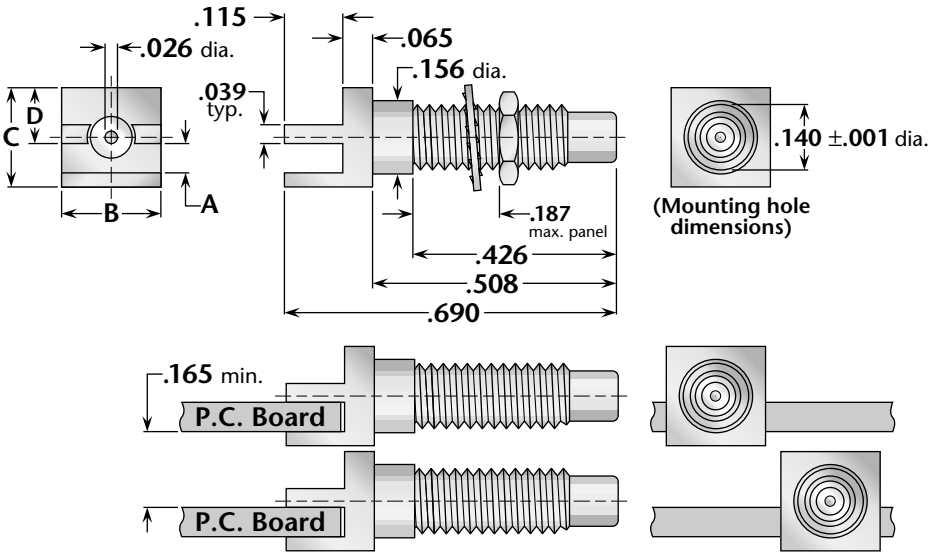


Figure 2 (.165" minimum vertical board spacing)

Board Thickness	Figure	Dimensions				Plating		Delta P/N
		A	B	C	D	Body	Contact	
.042	1	.048	.207	.156	.075	Gold (SS)	Gold (C)	2467-000-G91P-22
.054	1	.060	.207	.156	.075	Gold (SS)	Gold (C)	2467-000-G91P-8
.067	1	.073	.156	.222	.110	Gold (SS)	Gold (C)	2467-000-G91P-11
.042	2	.048	.207	.207	.115	Gold (SS)	Gold (C)	2467-000-G91P-2
.054	2	.060	.207	.207	.115	Gold (SS)	Gold (C)	2467-000-G91P-14
.062	2	.066	.207	.207	.115	Gold (SS)	Gold (C)	2467-000-G91P-13

(C) in contact plating column indicates captive contact (Epoxy captivated).
(SS) in body plating column indicates stainless steel body.

SMA to SSMC Adapters

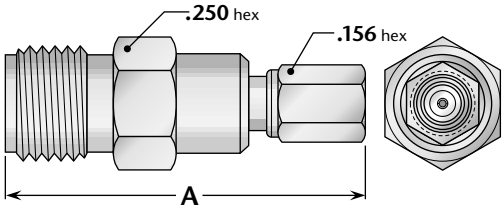


Figure 1 (SMA jack to SSMC plug)

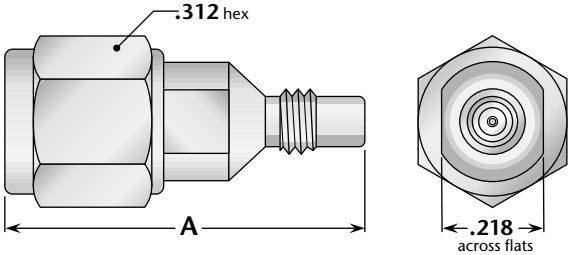


Figure 2 (SMA plug to SSMC jack)

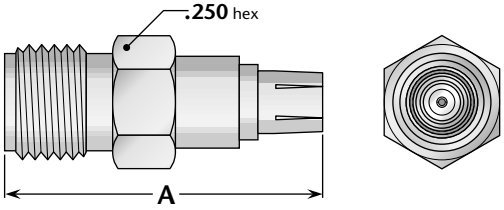
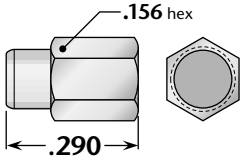


Figure 3 (SMA jack to SSMC ***push-on*** plug)

Figure	Dimensions	Plating		Delta P/N
	A	Body	Contact	
1	.420	Passivated (SS)	Gold (C)	2234-000-K001-194
2	.420	Passivated (SS)	Gold (C)	2234-000-K001-195
3	.290	Passivated (SS)	Gold (C)	2234-000-K001-196

Dust Cap for Jacks



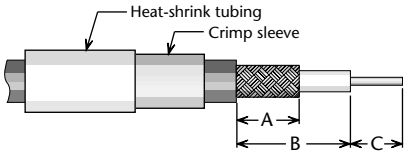
Plating	Delta P/N
Gold	2234-000-K001-194

(C) in contact plating column indicates captive contact (Mechanically captivated).
(SS) in body plating column indicates stainless-steel body.

Assembly Procedure A

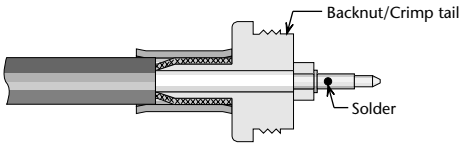
Cable Trim Codes			
Code	A	B	C
A/01	.150	.300	.125

1) Trim cable per chart. Slide crimp sleeve and heat-shrink tubing (if supplied) onto cable.

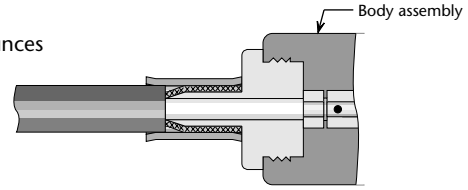


2) Flare cut end of braid slightly by rotating dielectric. Insert cable into rear of backnut/crimp tail, with all braid wires on outside of crimp tail. Slide insulator over cable dielectric until it is flush with front of backnut, and cable insulation bottoms inside insulator. Slide contact onto center conductor, with contact shoulder flush with front of insulator. Solder contact to center conductor.

3) Slide crimp sleeve forward until flush with clamp shoulder; crimp as close to shoulder as possible. (see page 15 for hex die sizes).



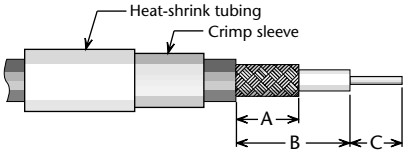
4) Insert prepared cable into back of body. Slide nut forward and tighten to 25-50 inch ounces torque. Shrink heat-shrink tubing (if supplied) with hot-air gun.



Assembly Procedure B

Cable Trim Codes			
Code	A	B	C
B/01	.150	.187	.050

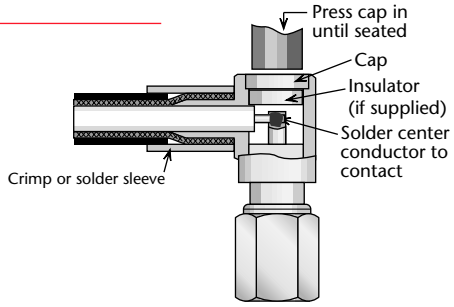
1) Trim cable per chart. Slide crimp sleeve and heat-shrink tubing (if supplied) onto cable.



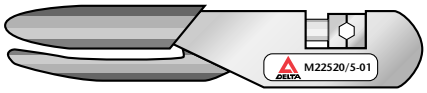
2) Insert cable into rear of body, with all braid wires on outside of crimp tail. Push cable in until end of braid touches connector body shoulder and center conductor rests in contact slot.

Slide crimp sleeve forward until flush with body and crimp (see below for hex die sizes). (For solder-type connectors, solder braid to body and sleeve through hole in sleeve.)

Solder center conductor into contact slot, assemble insulator disc (if supplied), then press cap into body until seated. Shrink heat-shrink tubing (if supplied) with hot-air gun.



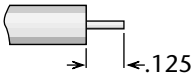
Crimp Tools for Flexible Cable



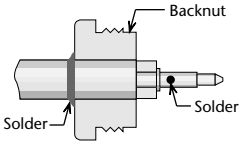
Frame only—P/N M22520/5-01—Use with interchangeable dies listed below.			
Cable Group*	Hex Die Size	Die Set P/N	Closure
9	.128 hex, .400 wide	M22520/5-35	B
10	.151 hex, .400 wide	M22520/5-37	B
11	.105 hex, .400 wide	M22520/5-33	B

Assembly Procedure C

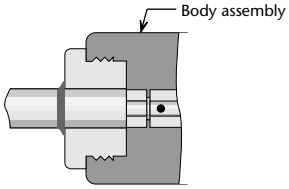
1) Trim cable as shown. Remove any burrs from jacket and center conductor.



2) Soft solder cable jacket to backnut, making sure that end of cable is flush with front side of backnut. Slide insulator over cable dielectric until it is flush with front of backnut. Slide contact onto center conductor, with contact shoulder flush with front of insulator. Solder contact to center conductor.

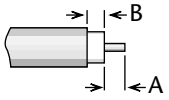


3) Insert prepared cable into back of body. Slide nut forward and tighten to 25-50 inch ounces torque.

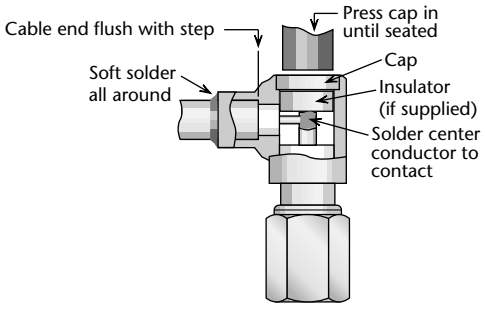


Assembly Procedure D

Trim Codes		
Code	A	B
D/01	.059	.050



1) Trim cable as shown. Remove any burrs from jacket and center conductor.



2) Soft solder cable jacket to body, making sure that end of cable is flush with step in body. Solder center conductor into contact slot, assemble insulator disc (if supplied), then press cap into body until seated or screw into place.

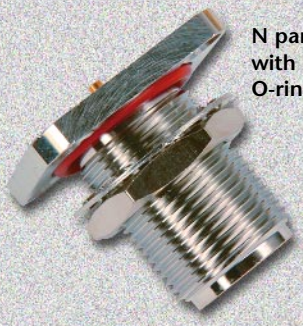
Index by Delta Part Number (Click on any line to go to the indicated page.)

Special & Custom Connectors

Although our catalogs contain a good representation of the scope of our product lines and capabilities, they cannot include all of the special-purpose connectors we have developed and manufactured over the years in response to our customers' specific requirements. We hope that this sampling of our unique designs will give you a better idea of our capability to design exactly the connector you need for your project. Our engineering staff welcomes your inquiries for special connector configurations of any series or specifications.

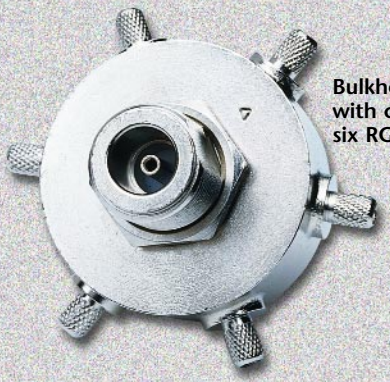
"Obsolete" is not in our vocabulary—If you still need it, we'll still make it.

SMA PressMount jack receptacle with right-angle post contact



N panel jack receptacle with bulkhead mounting, O-ring, and post contact.

N right angle push-on plug with three-hole flange and crimp cable attachment. Mates with standard type N jack.



Bulkhead-mounted N jack with crimp attachment for six RG-58 series cables.

7/16 panel jack with 1.75" square flange, integral outer contact, extended bulhkead mount body, and provision for mounting gasket.

SMA jack receptacle with threaded mounting, mounting gasket, and post contact.

Type N jack with round flange for antenna mounting; solder post provided for secondary ground signal connection.

BMC (high-frequency slide-on mating) adapters to SMA jacks. One side of mating pair float mounted for use in rack and panel applications.

N PressMount jack, with mounting gasket, direct-solder type for semi-rigid cable.

Straight and right angle slide-on panel mounted BNC plugs, clamp and crimp type cable attachment—mate with standard BNC jacks.

BMA edge mount PCB plug receptacle with bulkhead mount.

SMA bulkhead cable jack, crimp type, with 45-degree cable entry.

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Manufacturing Corporation

ISO9001:2008 Certified

Since our foundation in 1955, we have consistently grown with, and adapted to, the ever-changing requirements of the coaxial connector market. Beginning as a small manufacturer of UHF-frequency connectors, our growth in product lines and manufacturing capability now positions us as a premier connector supplier, with one of the broadest ranges of products in the industry.

Along with our product-line expansion, we recognized the need to keep pace with innovations such as Lean Manufacturing, state-of-the art CNC turning centers, and sophisticated CAD/CAM and HFSS design-modeling software, all geared toward providing our customers with the highest-quality products available, with quick delivery and at a competitive price.

As the connector market expanded in scope worldwide, we responded by developing a global presence to better serve the needs of our customers, both domestic and international. Our wholly-owned subsidiary in Nanjing, China provides unmatched capability to meet customer requirements, particularly for low-cost, high-volume connector types.

And in recognition of our customers' need to streamline their processes, we have launched our "Value Added" services, providing finished cable assemblies and integrated connectorized components that help our customers optimize their production and eliminate overhead.

Call us for all your coaxial connector needs—we make over 70 different series to match your requirements exactly, including:

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*M39012/M55339 QPL available.

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