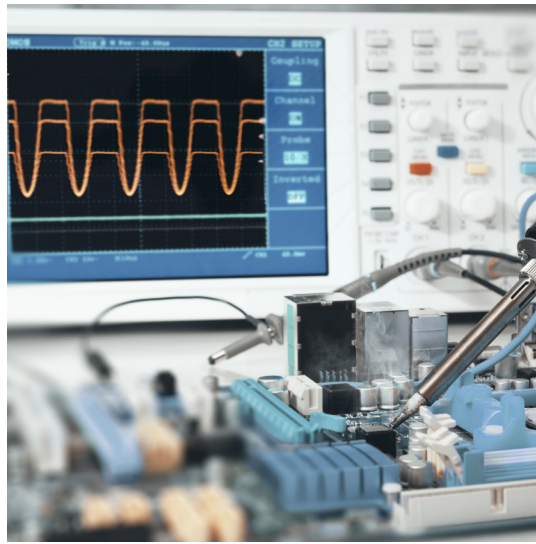


**JOHNSON™**



# SMP Solutions

Ganged Board to Board Catalog



[belfuse.com/cinch](http://belfuse.com/cinch)

## About Bel

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Bel is a publicly traded company that has been operated by the same family for over 65 years. Our history of organic growth and acquisitions have broadened our product portfolio. This has established Bel as a world leader with a diverse offering of power, protection and interconnect products. We design and manufacture these products which are primarily used in the networking, telecommunications, computing, military, aerospace, transportation and broadcasting industries. Bel's portfolio of products also finds application in the automotive, medical and consumer electronics markets.

## About Cinch Connectivity Solutions

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For over 100 years, Cinch Connectivity Solutions has manufactured high quality and reliable high performance connectors and cable assemblies. Cinch is recognized as a world class connectivity supplier of RF, fiber optic, hybrid, microwave components, circular, d-subminiatures, modular rectangular, electronic enclosures and cable assemblies. Cinch provides innovative solutions to the military, commercial aerospace, networking, telecommunication, test and measurement, oil and gas and other harsh environment industries. We aim to exceed our customers' expectations and continually offer innovative solutions to the rapidly changing needs of the markets and customers we serve.

Along with our parent company, Bel Fuse Inc., our mission is to provide products and services using established quality standards and to meet our customer expectations. To fulfill this objective, we strive to produce components and assemblies that embody optimum levels of reliability and performance in their design, manufacture, and delivery. Cinch Connectivity Solutions has consistently proven to be a valuable supplier to the foremost companies in its chosen industries by developing cost effective solutions for the challenges of new product development.

## Johnson™ SMP Connectors

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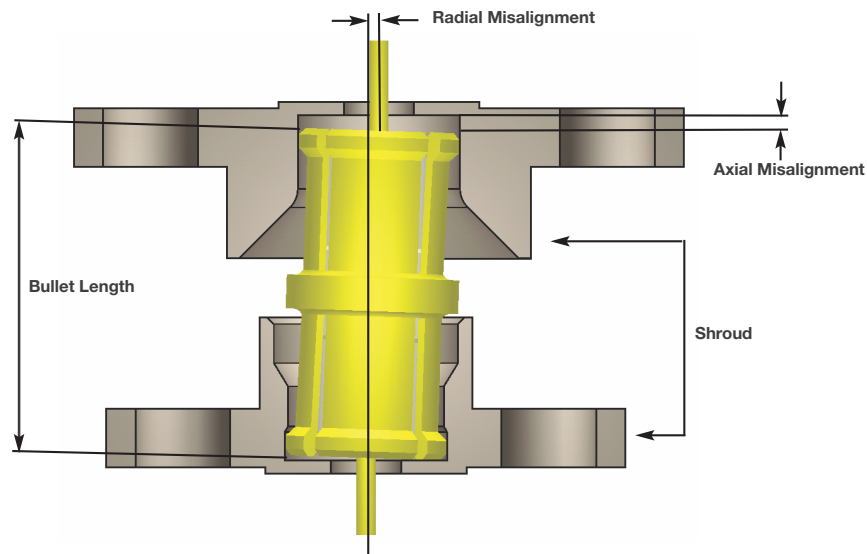
One of the key benefits of the SMP connector interface is its use in high frequency blind-mate applications. The design of the SMP bullet and shroud system allows for both axial and radial misalignment. The basic system is comprised of an inner "bullet" adapter, and two outer receptacles called "shrouds". The bullet provides a flexible link between the shroud connections.

In blind-mate applications, one shroud connector specified as a snap-on interface and the other as a slide-on. This ensures that the bullet adapter remains fixed in the same shroud connector when the connection is disengaged.

The two snap-on interfaces Full Detent (FD) and Limited Detent (LD) each have different engage and disengage coupling forces. The LD is typically selected as the snap-on interface in PCB mount or blind-mate applications, while the FD is mainly used for cabled connections where higher retention forces are required.

The two slide-on interfaces Smooth Bore (SM) and Catcher's Mit (CM) allow for reduced connection forces as compared to the snap-on versions. The push-on interface creates a sliding connection that does not physically locate the mating reference planes, allowing for axial and radial misalignment. Both the SM and CM have the same engage/disengage forces; however the CM is typically specified as the shroud configuration in blind-mate applications as its generous lead-in chamfer helps capture and guide the bullet into place.

## Custom RF Solutions



Cinch Connectivity Solutions' SMP Ganged and Board to Board RF Connector Solutions. Our SMP Product Family is launching a standard offering of a 4 port board to board solution, which can also be configured as a cable assembly to a ganged connector offering. The 4 port version can be optimized and customized to meet customers' needs, for number of ports, board spacing, connector separation spacing, and cable type/lengths, etc.

### Features

- Mating force spec 15 lbs engagement/ 5 lbs disengagement per SMP Full Detent specs, complies with MIL-STD-348A SMP specifications.
- Frequency range: DC to 40 GHz
- 50 ohms, Brass or Stainless Steel
- Scalable & cost effective up to 8 ports with one or two rows

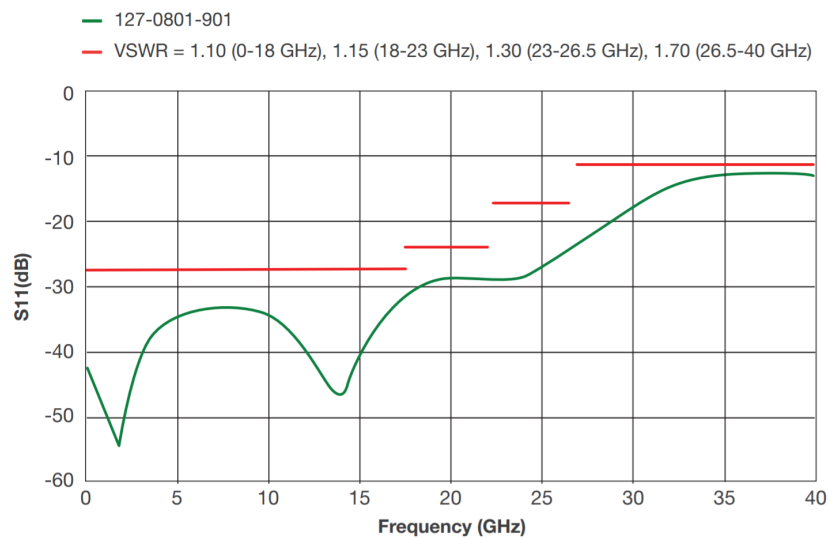
### Applications

- Networking router and switches
- Test and Measurement rack system
- Instrumentation Test Fixture Equipment
- Semiconductor ATE Test Boards
- Wireless Infrastructure Antenna Systems
- Radar Systems

## Electrical

<b>Impedance</b>	50 Ohms			
<b>Frequency Range:</b>	Bullet Adapter (.254" length), Ganged Cabled Connector .....			0-40 GHz
	Ganged PC Mount Connector .....			0-26.5 GHz
<b>VSWR:</b> (maximum)	Bullet Adapter (.254" length):	<u>0-18 GHz</u>	<u>18-23 GHz</u>	<u>23-26.5 GHz</u> <u>26.5-40 GHz</u>
		1.10	1.15	1.30   1.70
	Semi-Rigid Ganged Cabled Connector:	<u>0-18 GHz</u>	<u>18-26.5 GHz</u>	<u>26.5-40 GHz</u>
		1.25	1.35	1.50
	Ganged PC Mount Connector:	<u>0-18 GHz</u>	<u>18-23 GHz</u>	
		1.25	1.50	
<b>Insertion Loss:</b> (dB maximum, tested at 10 GHz)	Bullet Adapter .....	0.10 √F (GHz)		
	Semi-Rigid Cabled Connectors .....	0.12 √F (GHz)		
<b>Working Voltage:</b>	335 Vrms maximum at sea level, 65 Vrms maximum at 70,000 feet			
<b>Dielectric Withstanding Voltage:</b>	500 Vrms minimum at sea level			
<b>RF High Potential Withstanding Voltage:</b>	325 Vrms minimum at sea level, tested at 4 and 7 MHz			
<b>Corona Level:</b>	190 Vrms minimum at 70,000 feet			
<b>Contact Resistance:</b> (milliohms maximum initial, not applicable after environmental testing)	Center Contact (Connectors and Adapters) .....	6.0		
	Outer Contact (Connectors and Adapters) .....	2.0		
	Cable Shield to Body (Semi-Rigid Cabled Connectors Only) .....	0.5		
<b>Insulation Resistance:</b>	5000 megohms minimum			
<b>RF Leakage:</b> (dB typical, tested at 2.5 GHz)	Cabled and Field Replaceable Connectors .....	-80		
	Bullet Adapter, Ganged PC Mount Connector (Between Ports) .....	-62		

### Typical Measured Return Loss: Bullet Adapter



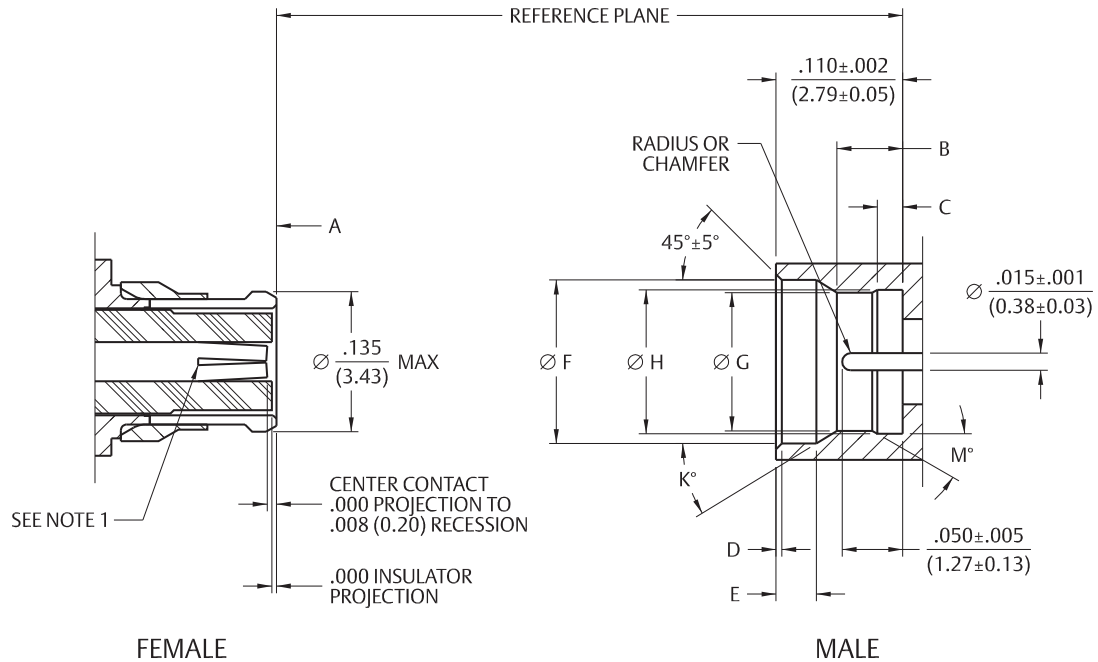
## Mechanical

Interface Design: MIL-STD-348A, Series SMP			
<b>Engagement Force:</b> (pounds maximum, mated pair)	Full Detent (FD) .....		15.0
	Limited Detent (LD) .....		10.0
	Smooth Bore (SB) .....		2.0
<b>Disengagement Force:</b> (pounds minimum, mated pair)	Full Detent (FD) .....		5.0
	Limited Detent (LD) .....		12.0
	Smooth Bore (SB) .....		0.5
<b>Mated Radial Misalignment:</b> (inches maximum allowed, female adapters only)	Between Centerlines of Mating Planes (SB) .....		0.010
	<b>Mated Axial Misalignment:</b> Maximum allowed between mating planes .....		
<b>Durability:</b> (mating cycles minimum)	Full Detent (FD) .....		100
	Limited Detent (LD) .....		500
	Smooth Bore (SB) .....		1000
<b>Contact Retention:</b>	1.5 pounds minimum axial force (captivated contacts only)		
<b>Cable Retention:</b> (minimum)		<u>Axial Force* (lbs)</u>	<u>Torque (in-oz)</u>
	Cabled Connectors for RG-405 (.086 Semi-Rigid)	30	16.0
	Cabled Connectors for M17/151 (.047 Semi-Rigid)	20	N/A
*Or cable breaking strength, whichever is less			
<b>Connector and Adapter Bodies:</b>	Beryllium Copper per ASTM B196, Gold* plated per MIL-DTL-45204 (.00005" min)		
<b>Connector and Adapter Insulators:</b>	PTFE per ASTM D1710, Gold* plated per MIL-DTL-45204 (.00003" min)		
*All gold plated parts include a .00005" min nickel barrier layer.			

## Environmental

Meets or Exceeds the Applicable Paragraph of MIL-PRF-39012	
<b>Operating Temperature:</b>	-65°C to +165°C
<b>Thermal Shock:</b>	MIL-STD-202, Method 107, Condition B (except high temp +165°C or max high temp of cable)
<b>Corrosion:</b>	MIL-STD-202, Method 101, Condition B
<b>Vibration:</b>	MIL-STD-202, Method 204, Condition D
<b>Shock: (specified pulse)</b>	MIL-STD-202, Method 213, Condition I
<b>Moisture Resistance:</b>	MIL-STD-202, Method 213, Condition I

## Mating Engagement for SMP Series per MIL-STD-348A



### Notes:

1. Socket to accept mating pin  $\varnothing .015 \pm .001$  (0.38±0.03).
2. All dimensions shown in inches. Metric equivalents (rounded to nearest 0.01mm) are given for general information only.

### SMP Female Connector Interface

Dimension	Cabled		Uncabled	
	Minimum	Maximum	Minimum	Maximum
A	.025 (0.64)	.035 (0.89)	.018 (0.46)	.025 (0.64)

### SMP Male Connector Interface

Dimension	Full Detent		Limited Detent		Smooth Bore		Catcher's Mit	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
B	.051 (1.30)	.057 (1.45)	.054 (1.37)	.060 (1.52)	.059 (1.50)	.065 (1.65)	N/A	N/A
C	.0205 (0.52)	.0235 (0.60)	.0205 (0.52)	.0235 (0.60)	N/A	N/A	N/A	N/A
D	.003 (0.08)	.008 (0.20)	.003 (0.08)	.008 (0.20)	.003 (0.08)	.008 (0.20)	.043 (1.09)	.047 (1.19)
E	.033 (0.84)	.037 (0.94)	.033 (0.84)	.037 (0.94)	.033 (0.84)	.037 (0.94)	N/A	N/A
F	.139 (3.53)	.145 (3.68)	.139 (3.53)	.145 (3.68)	.139 (3.53)	.145 (3.68)	.123 (3.12)	.127 (3.23)
G	.114 (2.90)	.118 (3.00)	.118 (3.00)	.122 (3.10)	.123 (3.12)	.127 (3.23)	N/A	N/A
H	.124 (3.15)	.126 (3.20)	.124 (3.15)	.126 (3.20)	N/A	N/A	N/A	N/A
K	35° REF	35° REF	35° REF	35° REF	35° REF	35° REF	N/A	N/A
M	30° REF	30° REF	30° REF	30° REF	N/A	N/A	N/A	N/A

## Mounting Holes

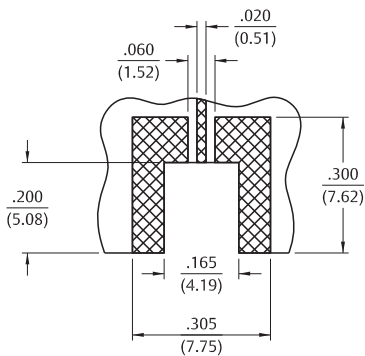


Fig 1

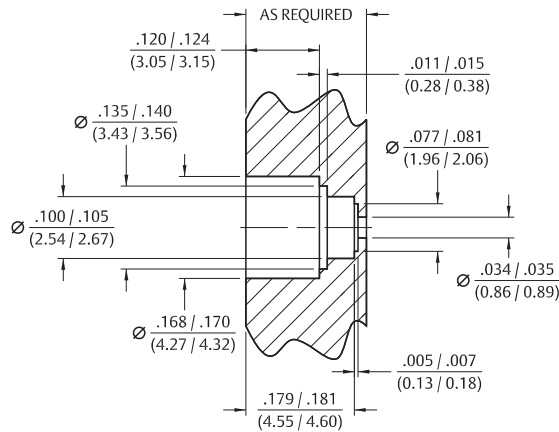


Fig 2

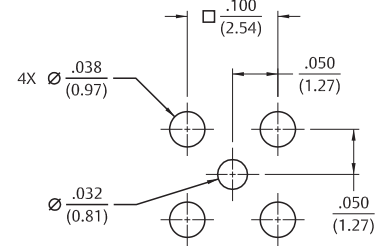


Fig 3

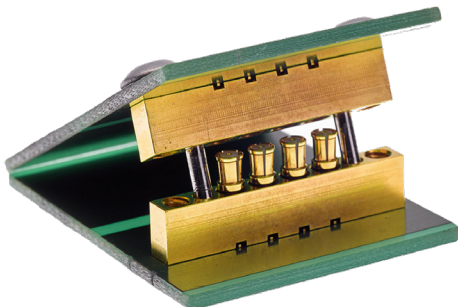
\*This pattern is for reference only. Pattern will vary depending on board type and specific electrical and mechanical requirements.

## Configurations

### Stacked

Vertical PC SMT SB or LD  
to a Vertical PCB SMT FD

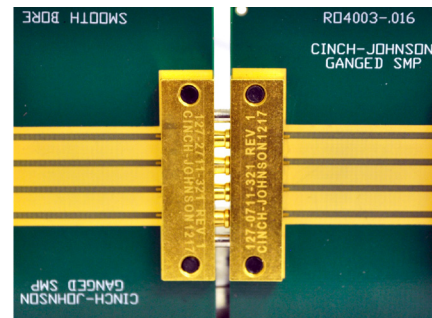
(0.484" spacing – fully mated)



### Orthogonal

Right Angle PC SMT SB or LD  
to a Right Angle PCB SMT FD

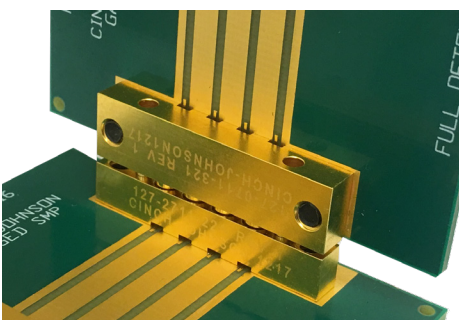
(0.034" spacing – fully mated)



### Coplanar

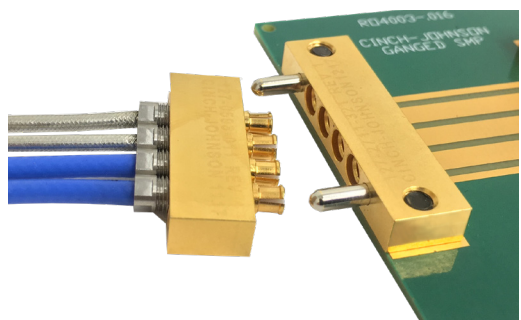
Vertical PC SMT SB or LD to a Right Angle PCB SMT FD

(0.259" spacing – fully mated)



Right Angle PC SMT SB or LD  
to a Straight Cable Mount FD

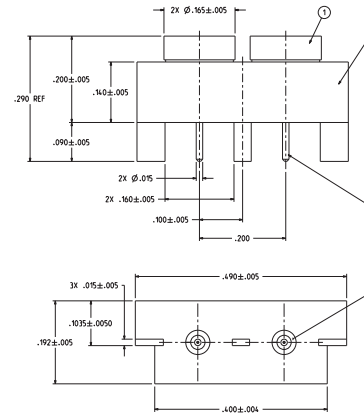
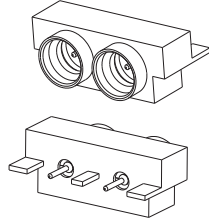
(0.034" spacing – fully mated)



# Edge Mount

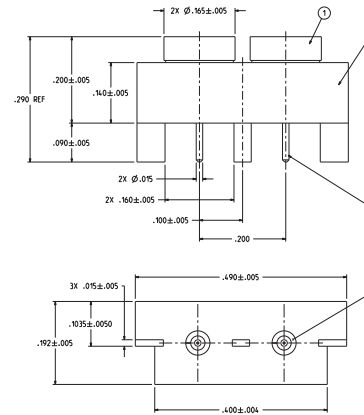
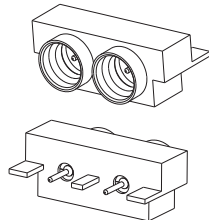
## Male, Full Detent, PCB Edge Mount

Part Number	Description				
127-0701-821	Male	Full Detent	Vertical PC Surface Mount	SMP	2 Position



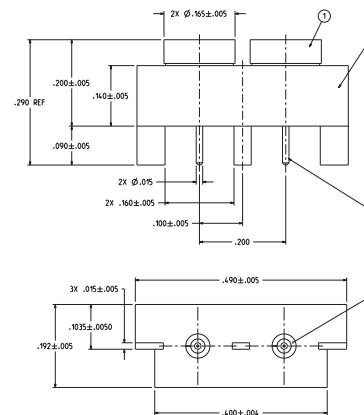
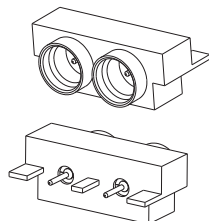
## Male, Limited Detent, PCB Edge Mount

Part Number	Description				
127-1701-821	Male	Limited Detent		SMP	2 Position



## Male, Smooth Bore, PCB Edge Mount

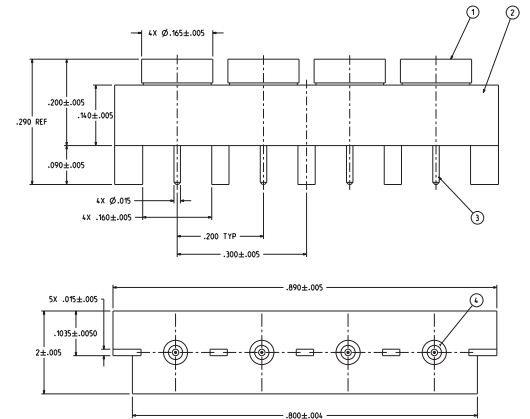
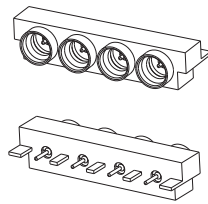
Part Number	Description				
127-2701-811	Male	Smooth Bore		SMP	2 Position





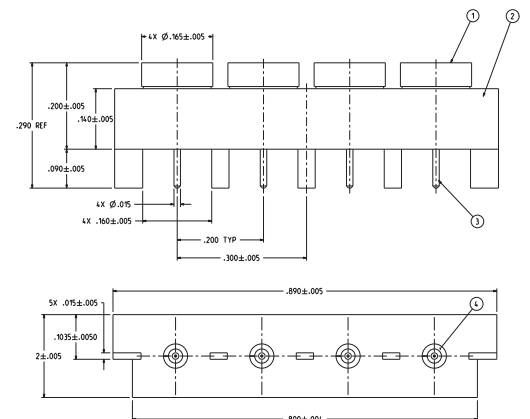
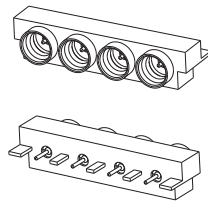
## Male, Full Detent, PCB Edge Mount

Part Number	Description				
127-0701-811	Male	Full Detent	Vertical PC Surface Mount	SMP	4 Position



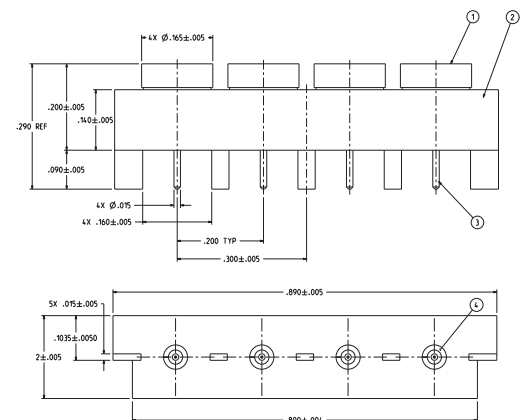
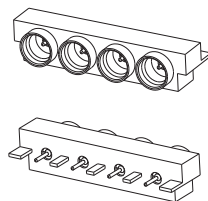
## Male, Limited Detent, PCB Edge Mount

Part Number	Description				
127-1701-831	Male	Limited Detent	Right Angle PCB Surface Mount	SMP	4 Position



## Male, Smooth Bore, PCB Edge Mount

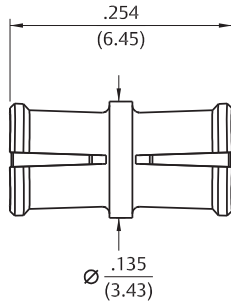
Part Number	Description				
127-2701-821	Male	Smooth Bore		SMP	4 Position



# Surface Mount

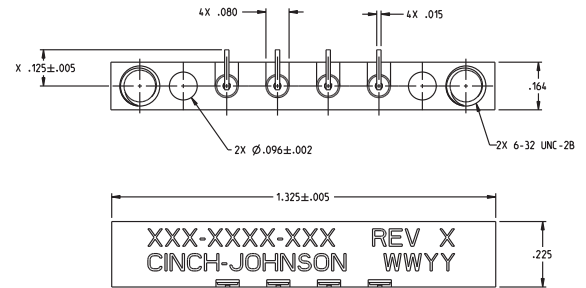
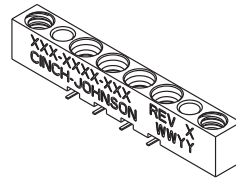
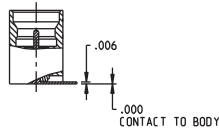
## Female to Female Bullet Adapter

Part Number	Description				
127-0901-801	Female to Female	Bullet Adapter		SMP	0.254"



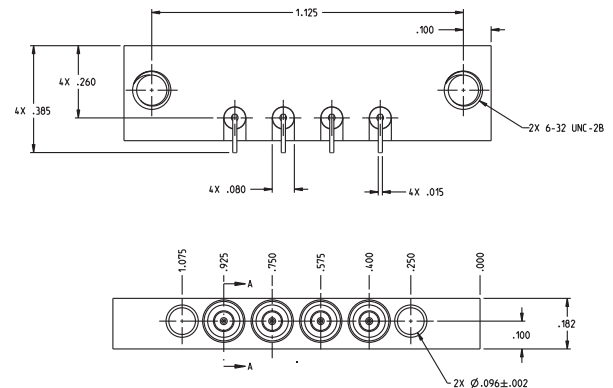
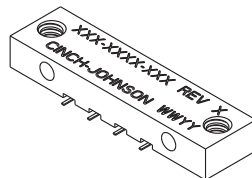
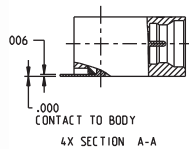
## Male, Full Detent, Vertical PCB Surface Mount

Part Number	Description				
127-0711-221	Male	Full Detent	Vertical PC Surface Mount	SMP	4 Position



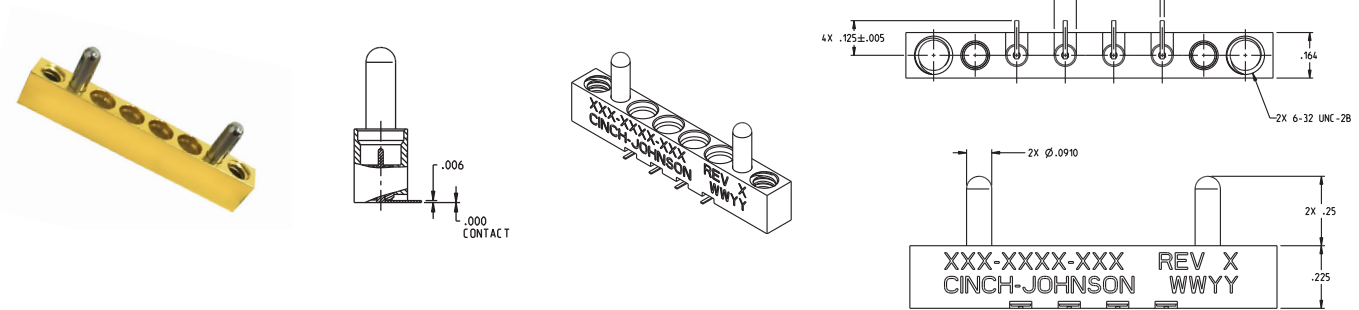
## Male, Full Detent, Right Angle PCB Surface Mount

Part Number	Description				
127-0711-321	Male	Full Detent	Right Angle PCB Surface Mount	SMP	4 Position



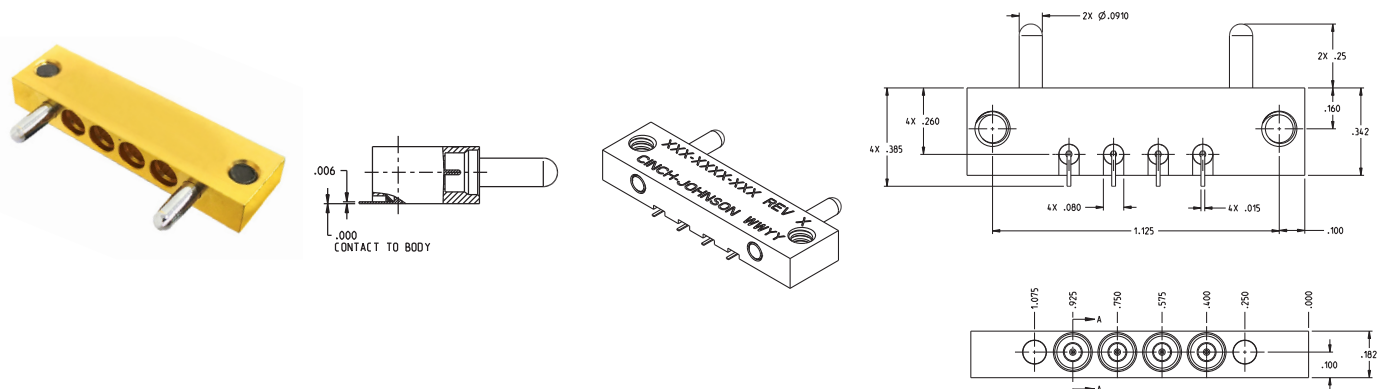
## Male, Smooth Bore/Limited Detent, Vertical PCB Surface Mount

Part Number	Description				
127-2711-221	Male	Smooth Bore	Vertical PCB Surface Mount	SMP	4 Position
127-1721-221	Male	Limited Detent	Vertical PCB Surface Mount	SMP	4 Position



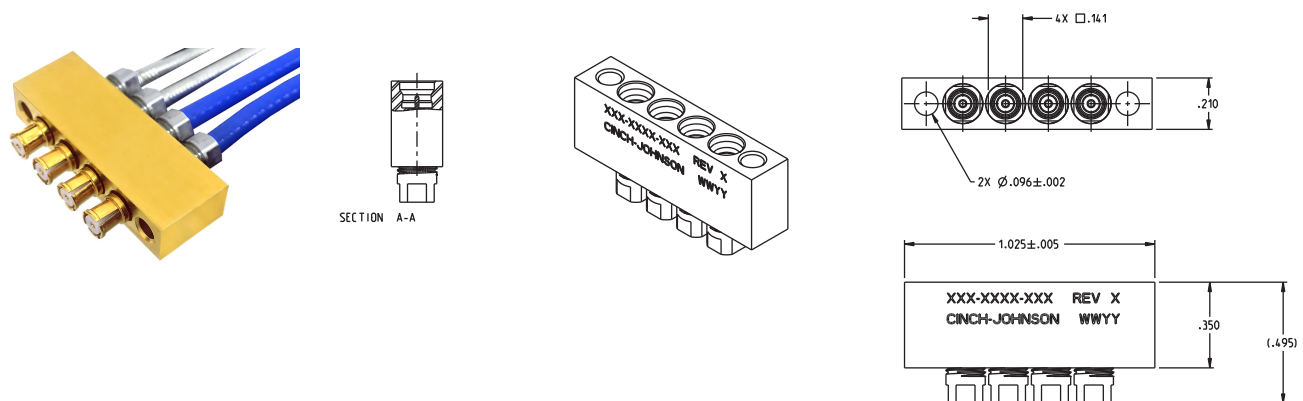
## Male, Smooth Bore/Limited Detent Right Angle PCB Surface Mount

Part Number	Description				
127-2711-321	Male	Smooth Bore	Right Angle PCB Surface Mount	SMP	4 Position
127-1721-321	Male	Limited Detent	Right Angle PCB Surface Mount	SMP	4 Position



## Male, Full Detent, Cabled

Part Number	Description				
127-0593-011	Male	Full Detent	Cabled	SMP	4 Position





## About Cinch Connectivity Solutions

In operation since 1917, Cinch supplies high quality, high performance connectors and cables globally to the Aerospace, Military/Defense, Commercial Transportation, Oil & Gas, High End Computer, and other markets. We provide custom solutions with our creative, hands on engineering and end to end approach.

Our diverse product offerings include: connectors, enclosures and cable assemblies utilizing multiple contact technologies including copper and fiber optics. Our product engineering and development activities employ cutting edge technologies for design and modeling, and our various technologies and expertise enable us to deliver custom solutions and products for our strategic partnerships.



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