



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**ITT**

**Electronic Components**

# **Cannon 50 Ohm RF Connectors**



*Engineered for life*

## Over 90 year history ...

ITT Electronic Components is an innovative and dynamic company with the in-depth experience of a 90 plus year industry leader. We are part of ITT Corporation, a multi-disciplined, multi-national company engaged in the design and manufacture of electronic components, defense products and fluid handling controls.

ITT operates globally and is active in many diverse markets including telecom, carrier networks, wireless, medical electronics, instrumentation, military, microwave components, information systems and radar. ITT is an approved manufacturer to ISO 9001 and ISO 14001.

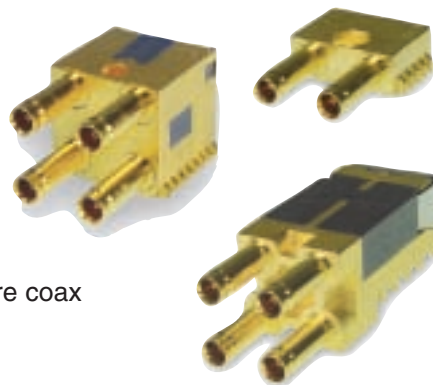


## Broad range of Cannon connectors and cable assemblies

In addition to our 50 Ohm RF product line, we also offer a range of 75 Ohm connectors including Type 43 (SMZ), 1.0/2.3, 1.6/5.6 and BNC.

### Cannon CoSMID™ connectors

CoSMID™ (Coax Surface Mount MID) 75 ohm connectors use molded interconnect device technology – a process which allows the selective metallization of 3D plastic shapes. Two, three or four coaxial connector lines can be integrated into a single surface mountable module. The modular design means that designers can incorporate more coax lines on a card edge than ever before.

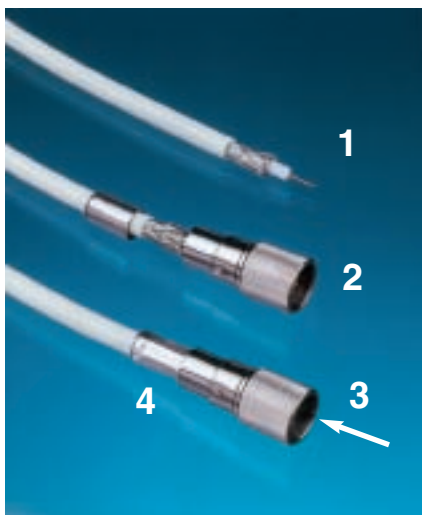


### QT - Quick Termination Connectors

Quick Termination connectors have the special QT contact pre-assembled into the main connector assembly, which eliminates the process of crimping or soldering onto the center conductor of a cable. The center conductor is terminated to the inner contact within the connector assembly, by activating the QT (patented) mechanism using the simple plastic tool provided. The assembly is completed in 4 simple steps.

1. Strip cable using standard tooling.
2. Assemble connector on to cable.
3. Press insulator into connector body.
4. Crimp the ferrule using standard hex crimp tool to complete the termination.

The QT principle may be applied to 50 Ohm products also. Contact our Customer Service group for more information.



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## CABLE ASSEMBLY SERVICE

Cannon has a precision cable assembly facility for the manufacture and testing of a wide range of cable / connector assemblies. By using Cannon's considerable expertise in this field, the customer is relieved of expensive training, tooling and reject problems. This invariably offers economic and logistical advantages when compared to user assembly.

Flexible, semi-rigid and Sealflex 2 RF and microwave coaxial cable assemblies for DC to 40 GHz are manufactured to the most complex customer designs and exacting mechanical and electrical tolerances. A full range of MIL-C-17G proprietary flexible and semi-rigid cables are used as well as the Sealflex 2 fully flexible, low loss microwave cable. With computerized semi-rigid cable forming and Vector Network Analyzer test equipment cable assemblies are manufactured for quality conscious customers the world over. Our skills, experience and 100% electrical testing allow us to build products that meet or exceed expectations.

## 75 OHM CONNECTORS

Cannon also offer a wide selection of 75 Ohm connectors for switching and transmission in telecom applications. These include the popular Type 43 (SMZ), 1.0/2.3, 1.6/5.6 and BNC connector ranges incorporating the CoSMID™ surface mountable modular technology and the (patented) 'QT' quick termination designs. The CoSMID modular design allows designers to incorporate more coax lines on a card edge than ever before and the QT assembly eliminates the process of crimping or soldering onto the centre conductor of the cable.

## FAKRA CONNECTORS

In addition to the range of SMB connectors we also offer FAKRA connectors for automotive applications.

For more details on any of the products listed above, please visit [www.ittcannon.com](http://www.ittcannon.com).

**CONNECTOR / CABLE SELECTION GUIDE**

Given here are details of all popular cables with which the connectors in this publication may be used.

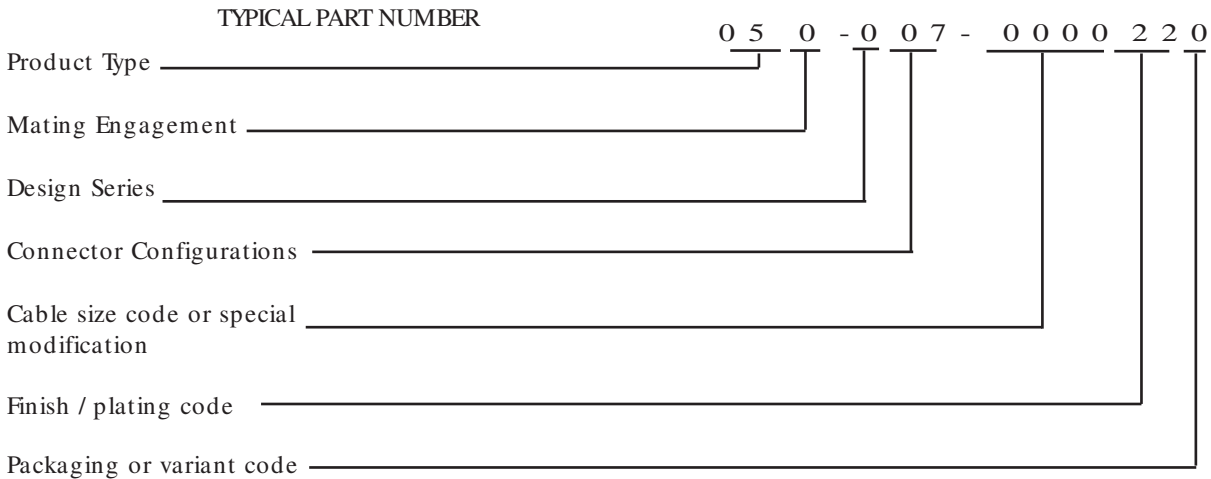
Cable numbers suitable for use with all cable mounting connectors are given opposite the connector part numbers in the series chosen.

Cable Number	Impedance (ohms)	Diameter of Jacket	Diameter of Outer Conductor (Max)	Diameter of Dielectric (Max)	Diameter of Center Conductor (Nom)
BT3002	75	3,55 (.140)	2,85 (.112)	1,95 (.077)	0,31 (.012)
RD179*	75	3,07 (.121)	2,69 (.106)	1,68 (.066)	0,30 (.012)
RD316*	50	3,00 (.118)	2,79 (.101)	1,60 (.063)	0,51 (.020)
RG174/U	50	2,67 (.105)	2,24 (.088)	1,60 (.063)	0,48 (.019)
RG178/U	50	1,91 (.075)	1,37 (.054)	0,91 (.036)	0,30 (.012)
RG179/U	75	2,67 (.105)	2,13 (.084)	1,68 (.066)	0,30 (.012)
RG187/U	75	2,80 (.110)	2,13 (.084)	1,68 (.066)	0,30 (.012)
RG188/U	50	2,80 (.110)	2,06 (.081)	1,60 (.063)	0,51 (.020)
RG196/U	50	2,04 (.080)	1,37 (.054)	0,91 (.036)	0,30 (.012)
RG316/U	50	2,60 (.102)	2,06 (.081)	1,60 (.063)	0,51 (.020)
RG402/U	50	-	3,61 (.142)	3,05 (.120)	0,91 (.036)
RG405/U	50	-	2,18 (.086)	1,70 (.067)	0,51 (.020)
TZC75024	75	3,55 (.140)	3,01 (.119)	1,95 (.077)	0,31 (.012)
RG141	50	4,95 (.195)	3,71 (.146)	3,07 (.121)	0,99 (.039)
RG142	50	5,08 (.200)	4,34 (.171)	3,07 (.121)	0,99 (.039)

\*Double shielded

**PART NUMBER GUIDE**







This table shows how the part numbers for coaxial connectors are constructed.






Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

www.ittcannon.com

**QUICK REFERENCE SELECTION GUIDE**

						
Series	<b>SMA Precision</b>	<b>SMA Commercial</b>	<b>SMB</b>	<b>SMC</b>	<b>SSM B</b>	<b>SSM C</b>
Description	Coaxial connector for rugged environments	Robust economical coaxial connectors	Rapid connect /disconnect coaxial connectors	Vibration resistant coaxial connectors	Microminiature rapid connect / disconnect coaxial connectors	Microminiature rapid connect / disconnect coaxial connectors
Frequency	DC - 18 GHz	DC - 18 GHz	DC - 4 GHz	DC - 12.4 GHz	DC - 4 GHz	DC - 4 GHz
Impedance	50Ω	50Ω	50Ω	50Ω	50Ω	50Ω
Cable Type	Flexible/ semi-rigid	Flexible/ semi-rigid	Flexible	Flexible	Flexible	Flexible
Coupling	Screw	Screw	Snap-on	Screw	Snap-on	Screw
Body Material	Stainless steel beryllium copper	Brass	Brass	Brass	Brass	Brass
Body Finish	Gold or passivated	Gold over nickel	Gold or nickel	Gold or nickel	Gold or nickel	Gold or nickel
Page Number	6	13	19	24	27	31

			
Series	<b>Coaxial Terminators</b>	<b>Between Series Adaptor</b>	<b>SEALFLEX 2™</b>
Description	Provide permanent coaxial connections to printed circuit boards	High efficiency transitions between various coaxial connector series	High performance flexible microwave cable assemblies
Frequency	DC - 4 GHz	DC - 18 GHz	DC - 18 GHz
Impedance	N/A	50Ω	50Ω
Cable Type	Flexible	N/A	Flexible
Coupling	N/A	Various	Screw
Body Material	Copper alloy	Stainless steel or brass	Stainless steel (connectors)
Body Finish	Electroplated tin	Gold or passivated	Passivated (connectors)
Page Number	33	35	37

Dimensions shown in mm (inch)

Specifications and dimensions subject to change

[www.ittcannon.com](http://www.ittcannon.com)



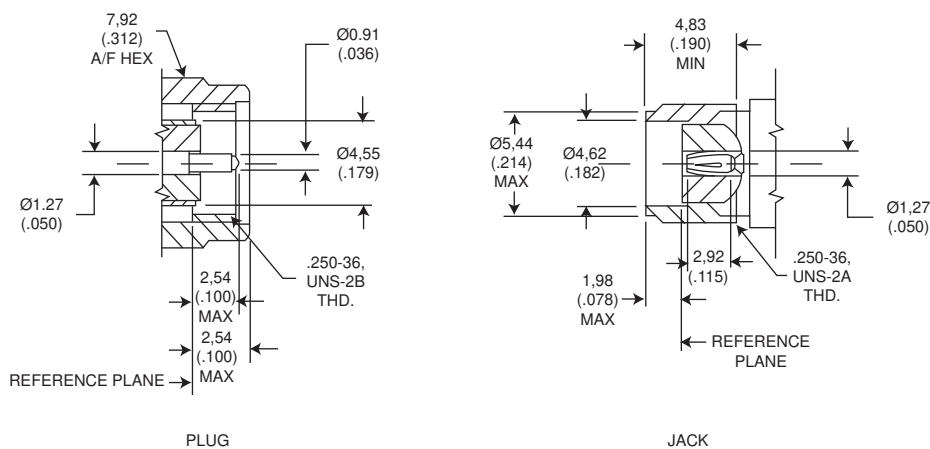
**Key Features**

- Military grade
- Rugged stainless steel design
- Intermateable with all SMAs to Mil-C-39012
- Frequency range DC to 18 GHz

Cannon’s precision SMA connectors feature the MIL-C-39012 Series SMA interface and envelope configuration. They can be mated with all connectors meeting the MIL specification dimensions. Designed for use with a variety of subminiature coaxial cables, superior results are obtained from DC to 18 GHz when used with semi-rigid cables and from DC to 12.4 GHz with flexible cable. These connectors are manufactured with beryllium copper bodies which are gold plated or stainless steel bodies which can be supplied with either a gold plated or passivated finish.

Cannon also offers a range of commercial SMA brass bodied connectors. For further details, please see page 13.

**MATING INTERFACES**



**SPECIFICATIONS**

ELECTRICAL	Impedance	50Ω nominal		
	Frequency Range	0 to 18.0 GHz		
	Voltage Rating	Connectors for RG178/U series cable: At Sea Level= 170 Vrms. At 21km (70k feet)= 45 Vrms Connectors for RG316/U series cable: At Sea Level= 250 Vrms. At 21km (70k feet)= 65 Vrms Connectors for RG142/U series cable: At Sea Level= 335 Vrms. At 21km (70k feet)= 85 Vrms		
	Insulation Resistance	5000 MΩ minimum		
	Contact resistance	Center Contact = 3.0 m Ω maximum initial. 4.0 m Ω maximum after environment Outer Contact = 2.0 m Ω maximum initial. 2.0 m Ω maximum after environment Braid to Body = 0.5 m Ω maximum		
	Contact Current Rating	2.0 A dc maximum		
	Insertion Loss	0.06 x $\sqrt{\text{freq. GHz}}$ tested at 6 GHz		
	RF Leakage	-60 dB minimum @ 2 - 3 GHz		
	Voltage Standing Wave Ratio (VSWR) To 18 GHz or 80% of upper cut-off frequency of the cable, whichever is lower. Applicable to 50Ω cables only.(F= GHz)	Connector Configuration		
		Cable group	Straight	Right Angle
RG178/U braided		1.20 + .025F	1.20 + .03F	
RG316/U braided		1.15 + .02F	1.15 + .03F	
RG142/U braided		1.15 + .01F	1.15 + .02F	
Dielectric Withstanding Voltage (DWV) Corona Level	Connectors used with RG316/U series cable = 750 Vrms @ Sea Level Connectors used with RG316/U series cable = 190 V @ 21km (70k feet) minimum			
MECHANICAL	Engagement Design	SMA per MIL-C-39012, Series SMA		
	Engagement Forces	Torque: 0.23 Nm (2 in. lbs.) maximum		
	Contact Torque	0.03 Nm (4 in. ozs.) minimum. (For captivated contacts)		
	Mating Torque	0.8 Nm to 1.1 Nm (7 to 10 in. lbs.)		
	Locknut Torque	1.4 Nm to 1.7 Nm (12 to 15 in. lbs.) minimum		
	Coupling Nut Retention	267 N (60 lbs.) minimum		
Materials	Body & Body Components: Non-magnetic stainless steel or beryllium copper. Female Contacts: Beryllium copper. Insulators: PTFE. Crimp Ferrule: Annealed copper alloy. Gaskets: Silicone rubber			
	Finish/Plating	Center Contacts: Gold plated. Other Metal Parts: Gold plated or passivated (as specified) to meet the finish and corrosion requirements of MIL-C-39012		
	ENVIRONMENTAL	Temperature Rating	-65° C to 165° C	
		Corrosion (salt spray)	MIL-STD-202, Method 101, test condition B, 5% salt solution	
Vibration, High Frequency		MIL-STD-202, Method 204, test condition D (20 G's)		
Shock	Shock	MIL-STD-202, Method 213, test condition I (100 G's)		
	Thermal Shock	MIL-STD-202, Method 107, test condition B		
	Moisture Resistance	MIL-STD-202, Method 106. No measurements at high humidity. Insulation resistance shall be 200 M Ω minimum within 5 minutes after removal from humidity.		
GENERAL	Connector Durability	500 matings minimum		
	Contact Captivation	Unless otherwise specified, all connectors feature captivated contacts. When captivated the contacts will withstand 26.7 N (6 lbs.) minimum axial force.		
	Cable Retention	When properly assembled to the compatible single braided coaxial cable, the retention is equal to the breaking strength of the cable.		
Body Plating Options				
The following part number suffices can be specified for Precision SMA Connectors				
..... 310 gold body, gold coupling nut				
..... 890 passivated body & coupling nut				
except <u>Direct Solder Types</u> ; gold body, passivated coupling nuts				

Dimensions shown in mm (inch)

Specifications and dimensions subject to change

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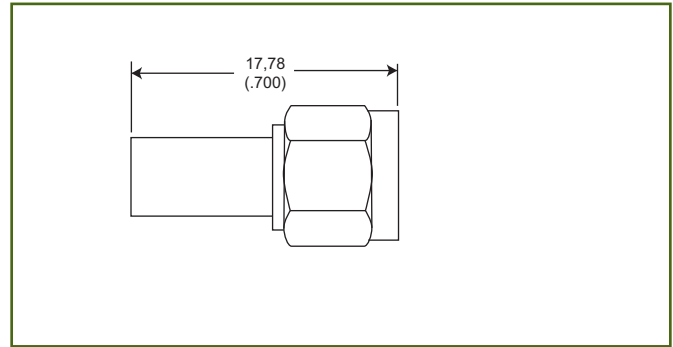




**CRIMP TYPE CABLE CONNECTORS FOR FLEXIBLE CABLE**

Straight Plug, Non-Captive Contact

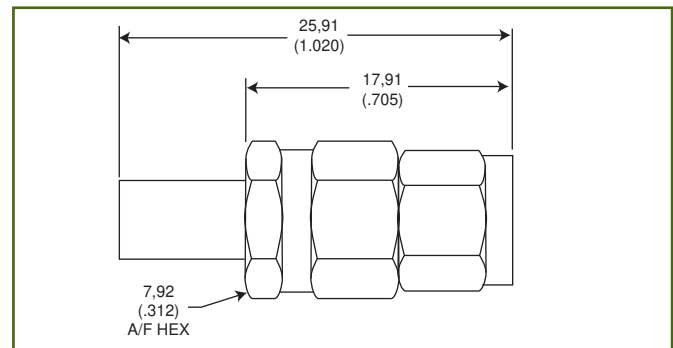
Part Number	Cable Numbers
050 - 622 - 9188890	RG174/U, 316/U
050 - 622 - 9875890	RD316



Assembly Instructions AI-102 (Page 43)

Straight Plug, Captive Contact

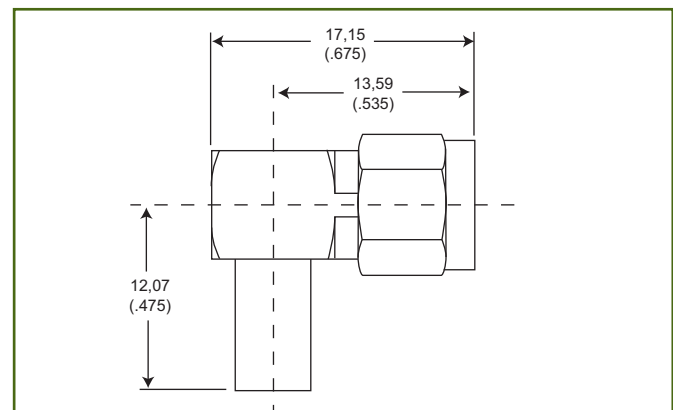
Part Number	Cable Numbers
A50 - 624 - 9188890	RG174/U, 316/U
A50 - 624 - 9875890	RD316



Assembly Instructions AI-703 (Page 51)

Right Angle Plug, Captive Contact

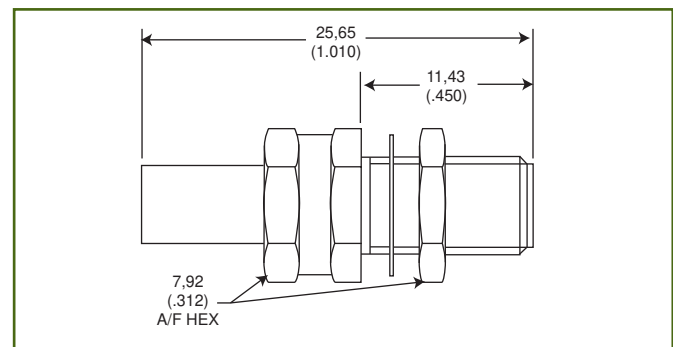
Part Number	Cable Numbers
050 - 628 - 9188890	RG174/U, 316/U
050 - 628 - 9875890	RD316



Assembly Instructions AI-90 (Page 41)

Bulkhead Jack, Captive Contact

Part Number	Cable Numbers
050 - 627 - 9188890	RG174/U, 316/U
050 - 627 - 9875890	RD316



Mounting Plan W (Page 40)  
Assembly Instructions AI-227 (Page 46)

The surface finish on these products is passivated stainless steel. For gold plated versions change last three digits of the part number from 890 to 310.



Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

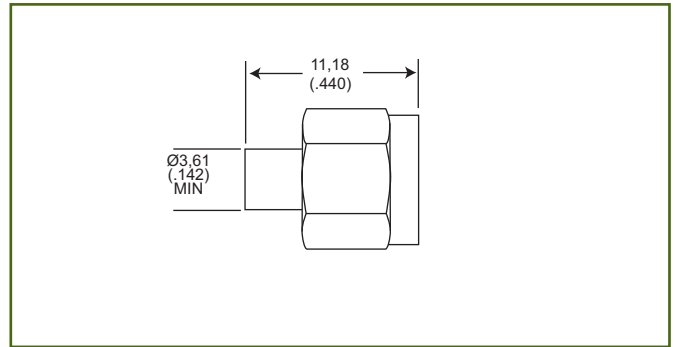
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**DIRECT SOLDER TYPE CABLE CONNECTORS FOR SEMI-RIGID CABLE**

Straight Plug without Center Contact\*

Part Number	Cable Numbers
055 - 607- 2003890	RG402/U

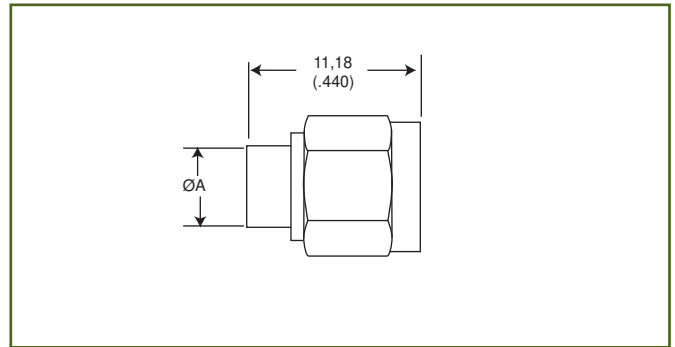
\*Center conductor of cable is used as contact



Assembly Instructions AI-302 (Page 48)

Straight Plug with Center Contact

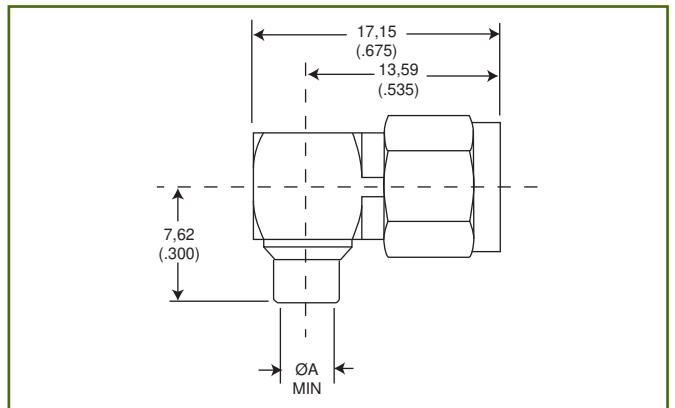
Part Number	Cable Numbers	A
055 - 607- 9172890	RG405/U	2,20 (.088)
055 - 607 - 9173890	RG402/U	3,60 (.142)



Assembly Instructions AI-252 (Page 47)

Right Angle Plug

Part Number	Cable Numbers	A
055 - 611- 3702890	RG405/U	2,20 (.088)
055 - 611- 3703890	RG402/U	3,60 (.142)



Assembly Instructions AI-98 (Page 42)

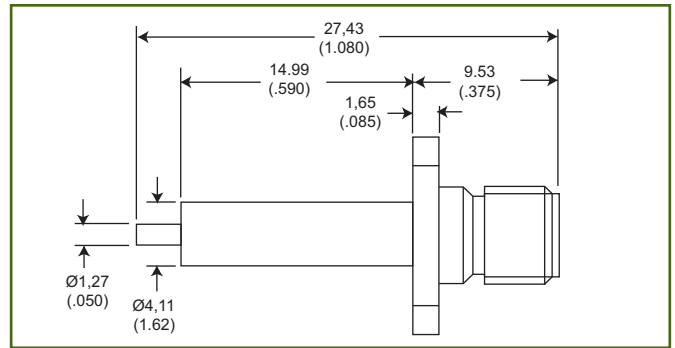
The surface finish on these products is passivated stainless steel. For gold plated versions change last three digits of the the part number from 890 to 310.

Dimensions shown in mm (inch)  
 Specifications and dimensions subject to change

**FLANGE MOUNT RECEPTACLES**

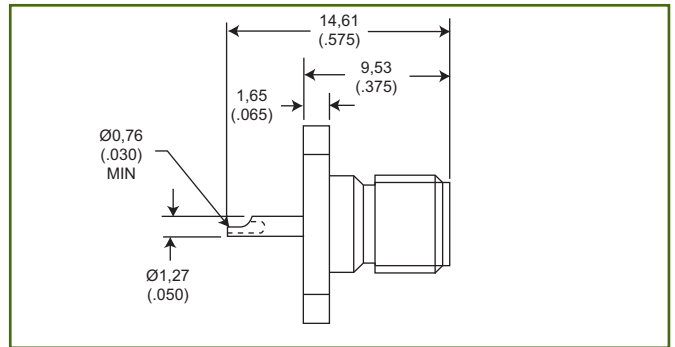
Straight Jack, Stub Contact, Extended Dielectric

Part Numbers	
Square Flange	Narrow Flange
050 - 645 - 9009890	050 - 645 - 4540890



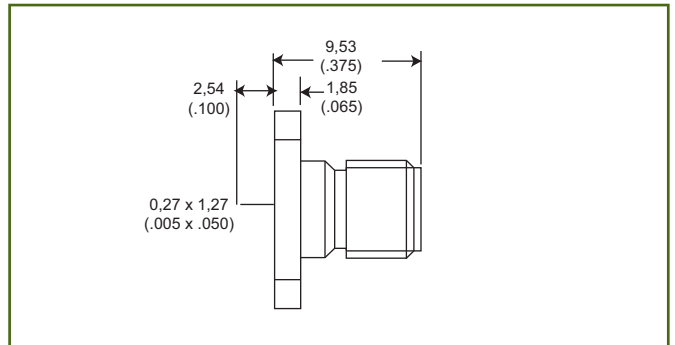
Straight Jack, Solder Pot Contact, Flush Dielectric

Part Numbers	
Square Flange	Narrow Flange
050 - 645 - 9019890	Contact Customer Service



Straight Jack, Tab Contact, Flush Dielectric

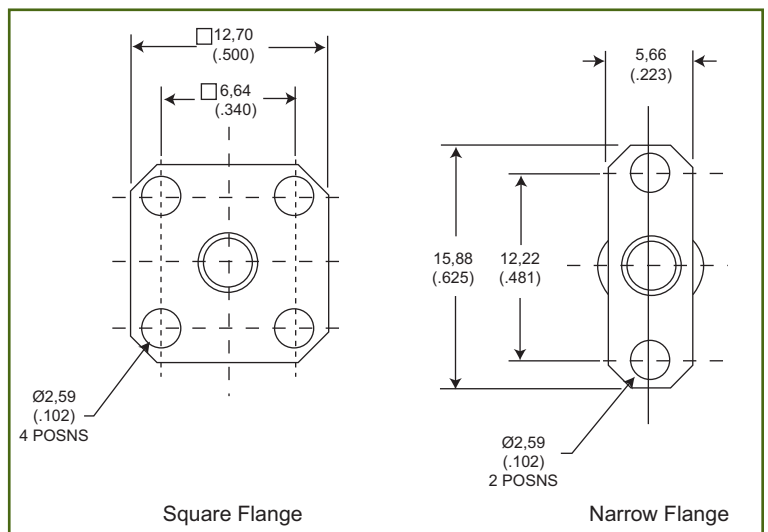
Part Numbers	
Square Flange	Narrow Flange
050 - 645 - 4575890	050 - 645 - 4528890



**Flange Dimensions for Flange Mount Receptacles and Panel Jacks**

ALL FLANGE MOUNT RECEPTACLES HAVE CAPTIVATED CONTACTS

The surface finish on these products is passivated stainless steel. For gold plated versions change last three digits of the the part number from 890 to 310.



Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

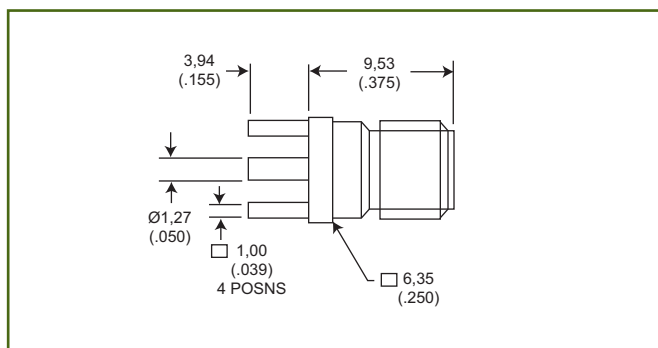
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**PRINTED CIRCUIT RECEPTACLES**

Straight Jack

Part Number

050 - 651 - 0000310

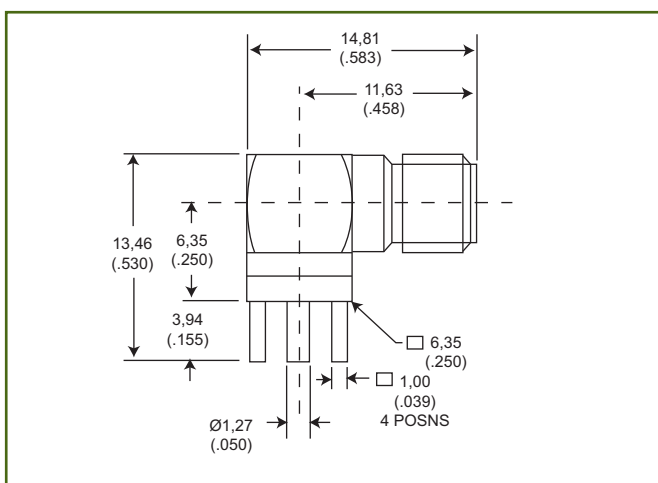


Mounting Plan D (Page 40)

Right Angle Jack

Part Number

050 - 653 - 0000310



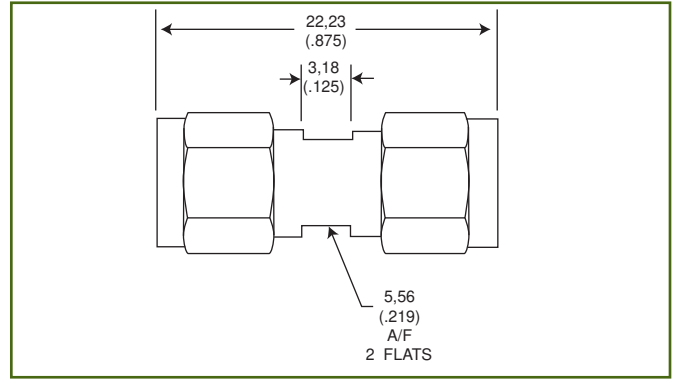
Mounting Plan D (Page 40)

**IN-SERIES ADAPTORS**

Plug to Plug Adaptor, Straight

Part Number

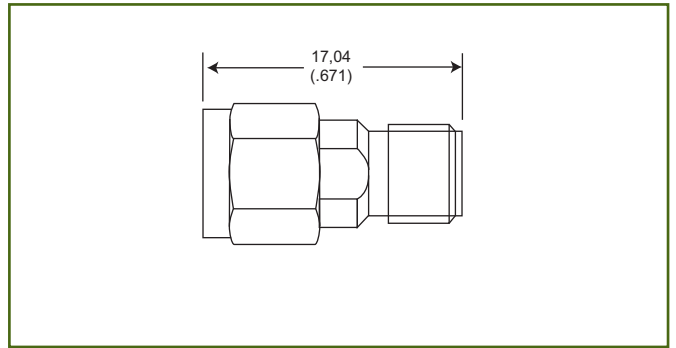
050 - 673 - 0000890



Plug to Jack Adaptor, Straight

Part Number

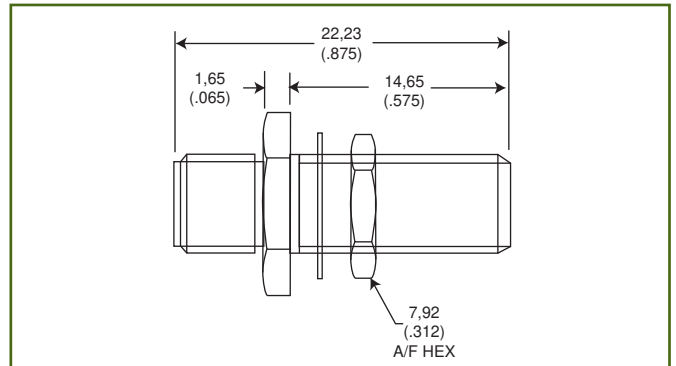
050 - 674 - 0000890



Jack to Jack Adaptor, Bulk Head Mount, Straight

Part Number

050 - 675 - 0000890

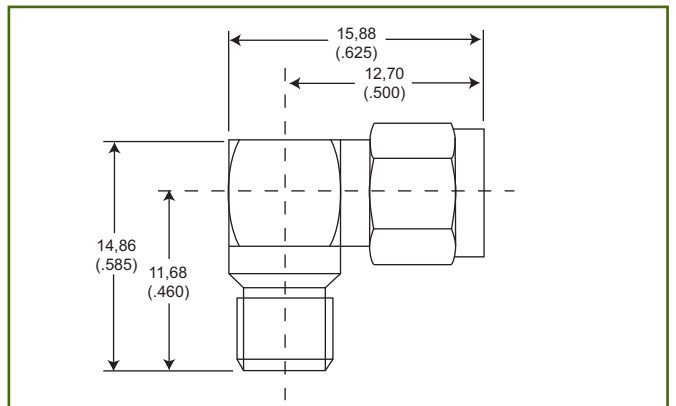


Mounting Plan W (Page 40)

Plug to Jack Adaptor, Right Angle

Part Number

050 - 678 - 0000890



The surface finish on these products is passivated stainless steel. For gold plated versions change last three digits of the the part number from 890 to 310.



Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

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Cannon’s Commercial SMA connectors are subminiature devices that provide repeatable electrical performance through the frequency range DC to 18.0 GHz. These 50 ohm connectors offer minimum attenuation with low reflection which makes them extremely popular in the RF and microwave industry. The MIL-C-39012 series SMA interface ensures they can be mated with all connectors meeting the MIL specification dimensions. They are designed for use with a variety of subminiature coaxial cables. This includes semi-rigid and hand formable cables as well as the popular RG series of flexible cable and commercial cables meeting these dimensions.

These SMA connectors feature stand-off legs on the PCB mount designs to enhance soldering, cleaning and inspection. The straight plugs feature crimp / solder contacts for speed of assembly and high performance. SMA connectors are found in many diverse applications including amplifiers, dividers, filters and attenuators.

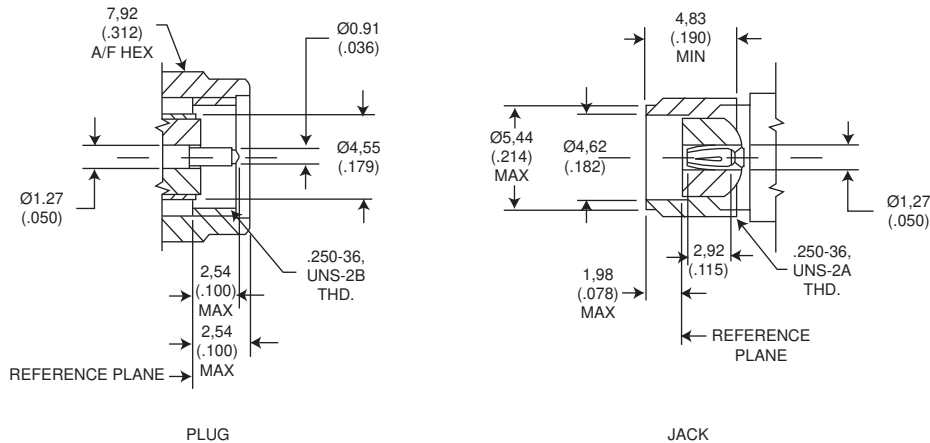
The standard units are supplied in gold plate. Nickel plated versions are available on request.



**Key Features**

- Crimp /solder contacts on straight plugs and bulkhead jacks
- Stand-off legs on PCB mounts
- Intermateable with all SMAs to MIL-C-39012

**MATING INTERFACES**



Dimensions shown in mm (inch)  
 Specifications and dimensions subject to change



**SPECIFICATIONS**

ELECTRICAL	Impedance	50Ω		
	Frequency Range	0 to 18.0 GHz		
		for RG-402 & RG-405 semi-rigid cable - 0 to 18 GHz		
			for flexible cable - 0 to the maximum frequency of the cable per MIL-C-17	
	Voltage Rating	RG402 (0.141" OD.)	550 volts rms maximum	
		RG405 (0.085" OD.)	335 volts rms maximum	
		RG58, 141, 142, 223	550 volts rms maximum	
		RG174, 188, 316	335 volts rms maximum	
	Insulation Resistance	5000 MΩ minimum		
	Contact Resistance	Center Contact = 5.0 mΩ maximum		
		Outer Contact = 1.0 mΩ maximum		
	Insertion Loss	0.04 dB maximum x $\sqrt{f}$ GHz (straight)		
		0.06 dB maximum x $\sqrt{f}$ GHz (right angle)		
RF Leakage	-(90-f GHz) dB minimum			
Voltage Standing Wave Ratio (VSWR)	1.05+0.15 x f GHz maximum (straight)			
	1.15+0.15 x f GHz maximum (right angle)			
	RG402 (0.141" OD)	1.05+0.005 x f GHz maximum		
	RG405 (0.085" OD)	1.05+0.005 x f GHz maximum		
	RG58, 141, 142, 223	1.10+0.01 x f GHz maximum (straight)		
		1.15+0.02 x f GHz maximum (right angle)		
	RG174, 188, 316	1.15+0.01 x f GHz maximum (straight)		
	1.18+0.02 x f GHz maximum (right angle)			
Dielectric Withstanding Voltage	RG402 (0.141" OD)	1000 volts rms maximum		
	RG405 (0.085"OD)	750 volts rms maximum		
	RG58, 141, 142, 223	1000 volts rms maximum		
	RG174, 188, 316	750 volts rms maximum		
MECHANICAL & ENVIRONMENTAL				
Mating	1/4" - 36 threaded coupling			
Durability	500 matings			
Coupling Nut Retention	Minimum 60 lbs			
Recommended Nut Mating Torque	8 inch-pounds			
Cable Retention	RG58, 141, 142, 223 40 lbs minimum			
	RG174, 188, 316	20 lbs minimum		
Temperature Range	-65° C to 165° C			
Vibration	MIL-STD-202 Method 204 test condition D			
Salt Spray	MIL-STD-202, Method 101, test condition B			
Temperature Cycling	MIL-STD-202, Method 102 test condition C			
MATERIAL				
	Material	Plating		
Connector Body	Brass		Gold or nickel	
	Center Contact	Male: Brass	Gold over nickel	
Female: beryllium-copper		Gold over nickel		
Insulation	Teflon		None	
Gasket	Silicone		None	
Crimp Ferrule	Annealed Copper		Same as body	

Dimensions shown in mm (inch)

Specifications and dimensions subject to change

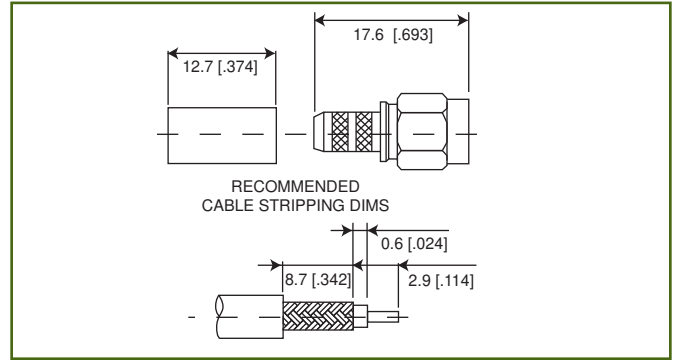
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**CRIMP ATTACHMENTS FOR FLEXIBLE CABLE**

Straight Crimp Plug

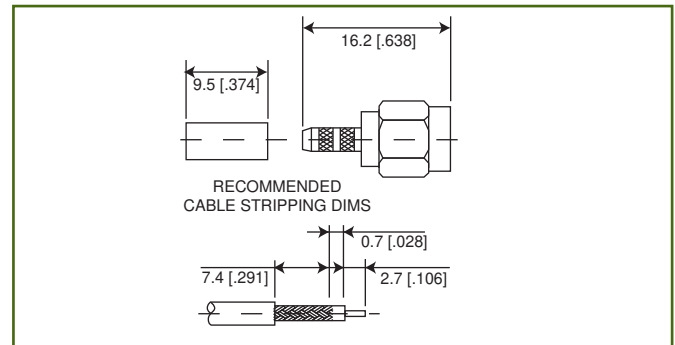
Part Number	Cable Numbers
F50 - E22 - 9141000	RG141
F50 - E22 - 9142000	RG142



Assembly Instructions CSMA 1 (Page 54)

Straight Crimp Plug

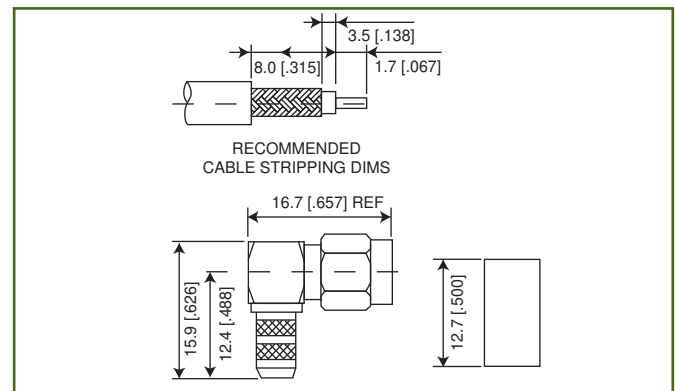
Part Number	Cable Numbers
F50 - E22- 9188000	RG316
F50 - E22 - 9875000	RD316



Assembly Instructions CSMA 1 (Page 54)

Right Angle Crimp Plug

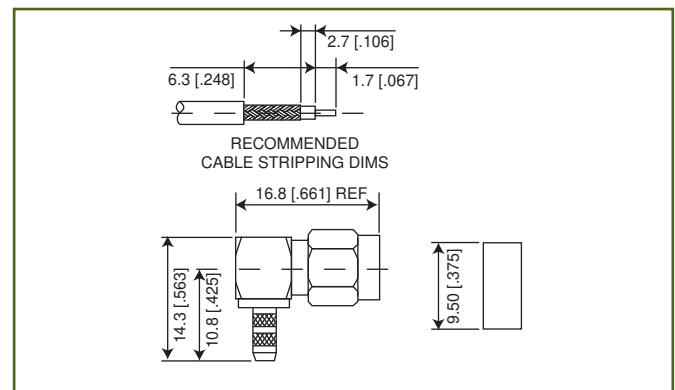
Part Number	Cable Numbers
F50 - E28 - 9141000	RG141
F50 - E28 - 9142000	RG142



Assembly Instructions CSMA 2 (Page 54)

Right Angle Crimp Plug

Part Number	Cable Numbers
F50 - E28 - 9188890	RG316
F50 - E28 - 9875000	RD316



Assembly Instructions CSMA 2 (Page 54)

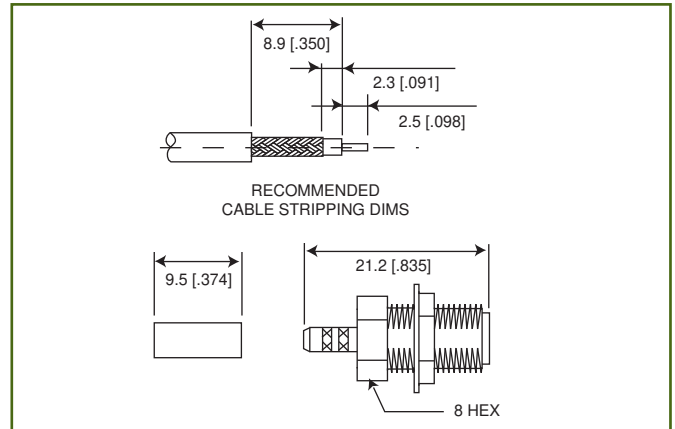
Dimensions shown in mm (inch)  
 Specifications and dimensions subject to change



**CRIMP ATTACHMENTS FOR FLEXIBLE CABLE**

Bulkhead Crimp Jack

Part Number	Cable Numbers
F50 - E27 - 9188000	RG316
F50 - E27 - 9875000	RD316

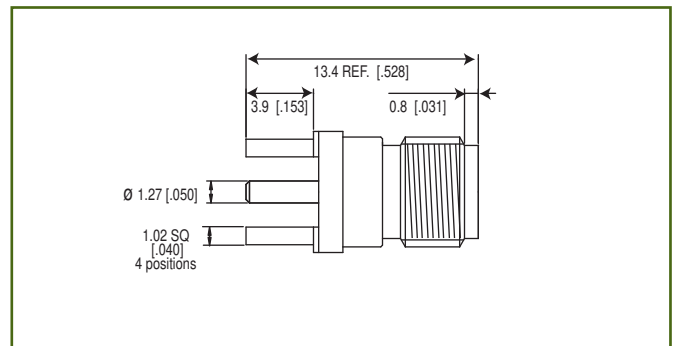


Assembly Instructions CSMA 1 (Page 54)  
Panel Mounting Plan W (Page 40)

**PRINTED CIRCUIT BOARD**

Straight Jack for Printed Circuit Board

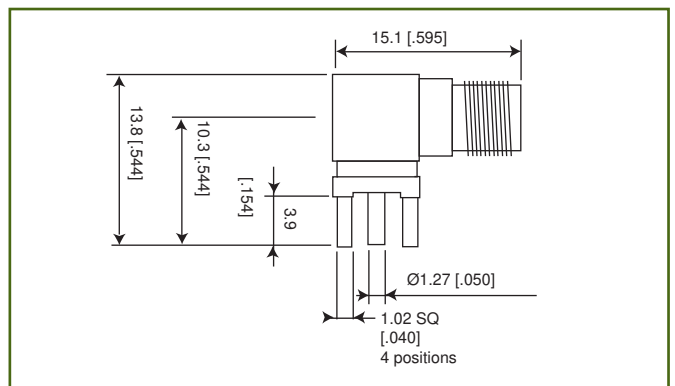
Part Number	Cable Numbers
F50 - E51 - 0000000	N/A



PCB Mounting Plan D (Page 40)

Right Angle Jack for Printed Circuit Board

Part Number	Cable Numbers
F50 - E53 - 0000000	N/A



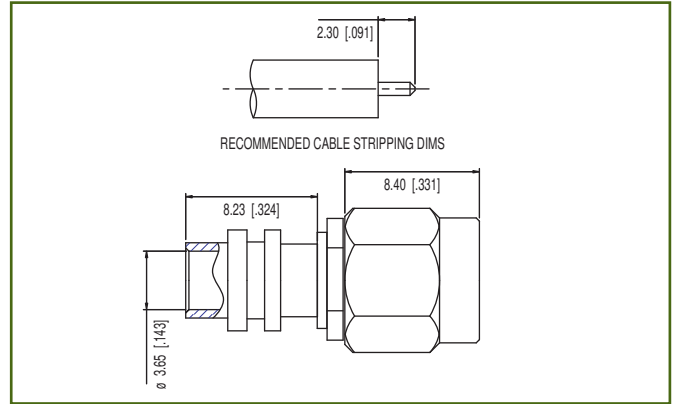
PCB Mounting Plan D (Page 40)



**DIRECT SOLDER FOR SEMI-RIGID CABLE**

Straight Cable Plug Without Contact

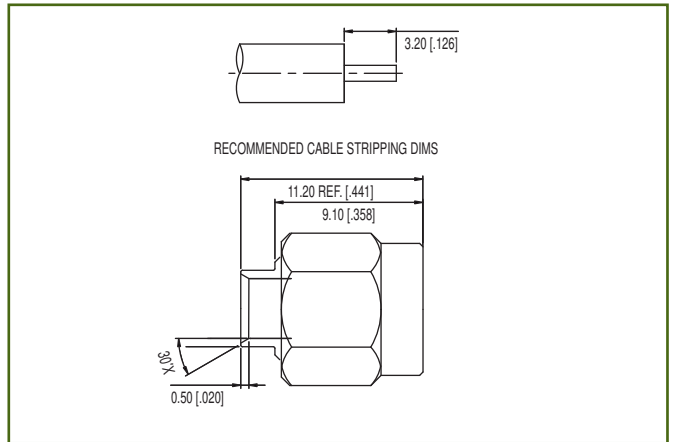
Part Number	Cable Numbers
F55 - E07 - 2003000	RG402



Assembly Instructions CSMA 3 (Page 55)

Straight Cable Plug With Contact

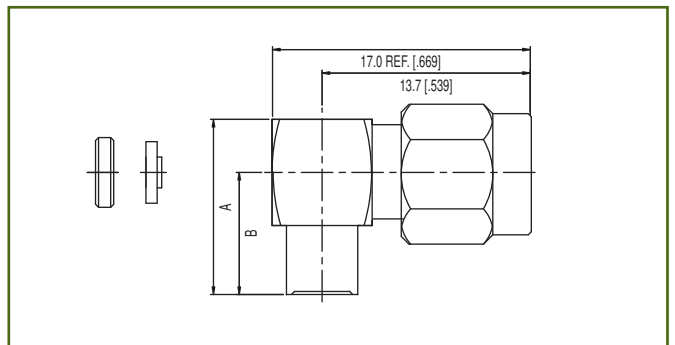
Part Number	Cable Numbers
F55 - E07 - 9172000	RG405
F55 - E07 - 9173000	RG402



Assembly Instructions CSMA 4 (Page 56)

Right Angle Cable Plug

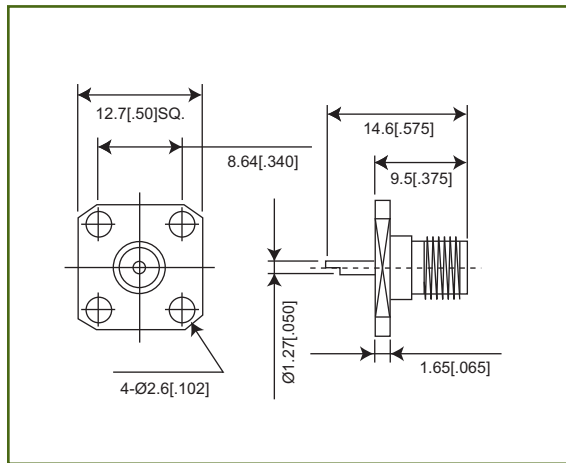
Part Number	Cable Numbers	A	B
F55 - E11 - 3702000	RG405	8,1 [3.19]	4,6 [1.81]
F55 - E11 - 3703000	RG402	11,5 [4.53]	8,1 [3.19]



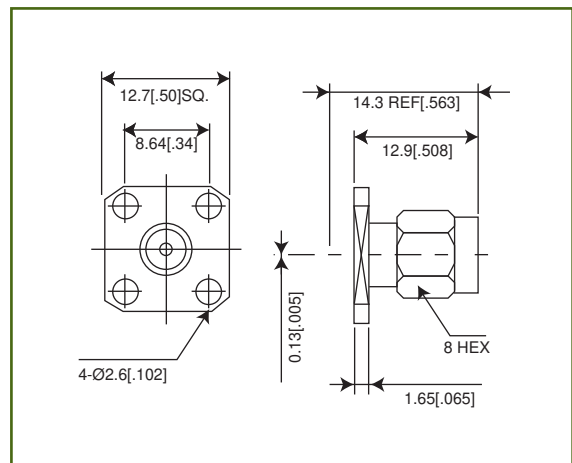
Assembly Instructions CSMA 5 (Page 57)

Dimensions shown in mm (inch)  
 Specifications and dimensions subject to change

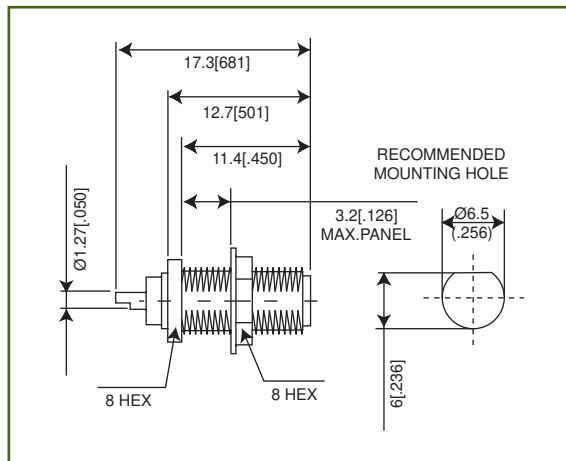
The designs shown in this catalogue are not the entire range. Examples of some of the many styles that are available on request are shown below. Should you require styles that are not shown please contact our nearest sales department listed on the back cover.



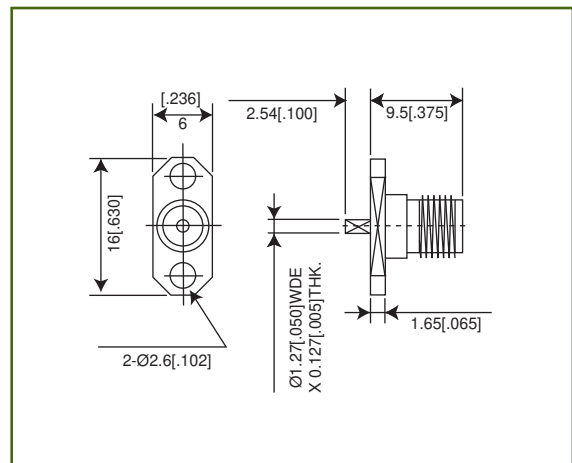
Panel Mount Jack - Solder Pot Contact



Panel Mount Plug - Tab Contact



Bulkhead Mount Jack - Solder Pot Contact



Panel Mount Plug - Tab Contact

Cannon's SMB Snap-on and SMC Screw-on subminiature coaxial connectors have been specifically engineered for high performance and high reliability applications in both military and commercial equipment operating at frequencies up to 4 GHz (SMB) and 12.4 GHz (SMC).

The Snap-on mating engagement allows a rapid connect/disconnect facility. The Screw-on mating engagement allows a low VSWR under vibration conditions and a matched impedance of 50 ohms.

Cannon SMB/SMC connectors are compatible with all SMB/SMC type connectors conforming with MIL-C-39012, BS 9210, UTE C93 561, UTE C93 562, CECC 22 130 and CECC 22 140.

In addition to this range we also offer FAKRA SMB connectors for automotive applications.

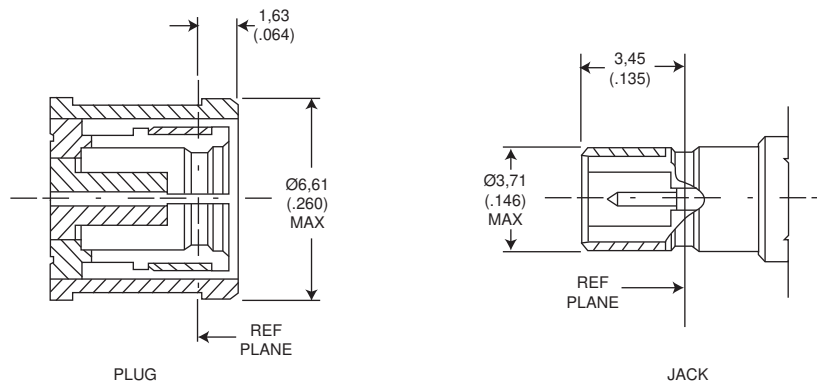


**Key Features**

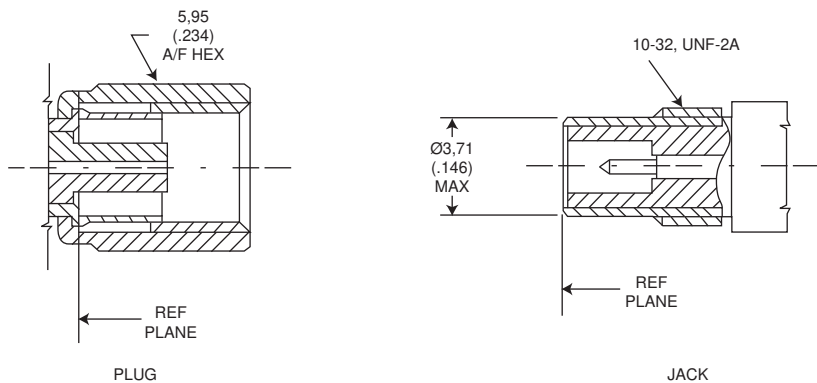
- Rapid connect / disconnect (SMB)
- Standoff legs on PCB
- Frequency range to 12.4 GHz (SMC) or 4 GHz (SMB)
- Vibration withstanding design (SMC)

**MATING INTERFACES**

SMB (SNAP-ON)



SMC (SCREW-ON)



**NOTES**

1) Inside diameter of female contact to meet VSWR mating characteristics and connector durability when mated with a  $0,48 \pm 0,53$  ( $.019 \pm .021$ ) diameter male contact.

2) All undimensioned pictorial representations are for reference purposes only.

3) Slide-on versions of most SMB female styles, prefix 052, are available. For slide-on male interconnection use male SMB (snap-on type).

Dimensions shown in mm (inch)  
 Specifications and dimensions subject to change

www.ittcannon.com



**SPECIFICATIONS**

ELECTRICAL	Impedance	50Ω																											
	Frequency Range	SMB = 0 to 4.0 GHz. SMC = 0 to 12.4 GHz																											
	Voltage Rating	Connectors for RG196/U series cable: At Sea Level= 300 Vms. At 21km (70k feet)= 75 Vms Connectors for RG188/U series cable: At Sea Level= 400 Vms. At 21km (70k feet)= 100 Vms																											
	Insulation Resistance	1000 MΩ minimum																											
	Contact resistance	Center Contact = 6.0 m Ω maximum initial. 8.0 m Ω maximum after environment Outer Contact = 1.0 m Ω maximum initial. 1.5 m Ω maximum after environment Braid to Body = 1.0 m Ω maximum																											
	Contact Current Rating	1.5 A dc maximum																											
	Insertion Loss	0.25 dB maximum @ 4 GHz																											
	RF Leakage	SMB = -55 dB minimum @ 2 - 3 GHz SMC = -60 dB minimum @ 2 - 3 GHz																											
	Voltage Standing Wave Ratio (VSWR) To 10 GHz or 80% of upper cut-off frequency of the cable, whichever is lower. Applicable to 50Ω cables only.(F= GHz)	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Connector Configuration</th> </tr> <tr> <th colspan="2">SMB</th> <th colspan="2">SMC</th> </tr> <tr> <th>Cable group</th> <th>Straight</th> <th>Right Angle</th> <th>Straight</th> <th>Right Angle</th> </tr> </thead> <tbody> <tr> <td>RG196/U Series</td> <td>1.30 + .04F</td> <td>1.45 + .06F</td> <td>1.25 + .04F</td> <td>1.40 + .06F</td> </tr> <tr> <td>RG188/U Series</td> <td>1.20 + .04F</td> <td>1.35 + .04F</td> <td>1.20 + .04F</td> <td>1.30 + .04F</td> </tr> </tbody> </table>					Connector Configuration				SMB		SMC		Cable group	Straight	Right Angle	Straight	Right Angle	RG196/U Series	1.30 + .04F	1.45 + .06F	1.25 + .04F	1.40 + .06F	RG188/U Series	1.20 + .04F	1.35 + .04F	1.20 + .04F	1.30 + .04F
		Connector Configuration																											
SMB		SMC																											
Cable group	Straight	Right Angle	Straight	Right Angle																									
RG196/U Series	1.30 + .04F	1.45 + .06F	1.25 + .04F	1.40 + .06F																									
RG188/U Series	1.20 + .04F	1.35 + .04F	1.20 + .04F	1.30 + .04F																									
MECHANICAL	Engagement Design	SMB per MIL-C-39012, Series SMB. SMC per MIL-C-39012, Series SMC.																											
	Engagement Forces	SMB: Initial = 62 N (14 lbs.) max. engagement. After 500 matings = 62 N (14 lbs.) max. engagement and disengagement = 8.9 N (2 lbs.) min. disengagement. SMC: 0.11 Nm (16 in. oz. ) torque max.																											
	Mating Torque	SMB: N/A SMC: 0.42 to 0.50 Nm (60 to 70 in.oz)																											
	Locknut Torque	0.56 to 0.64 Nm (80 to 90 in. oz)																											
	Coupling Nut Retention	SMB: N/A SMC: 155 N (35 lbs. ) minimum																											
	Materials	Body, Body Components and Male Contacts: Brass, half hard. Female Contacts: Beryllium Copper, heat treated. Insulators: PTFE. Lockwashers: Phosphor Bronze. Crimp Ferrule: Annealed copper alloy. Gaskets: Silicone rubber																											
	Finish/Plating	Center Contacts: Gold plated. Other Metal Parts: Gold plated or nickel plated (as specified) to meet the finish and corrosion requirements of MIL-C-39012																											
ENVIRONMENTAL	Temperature Rating	-65° C to 165° C																											
	Corrosion (salt spray)	MIL-STD-202, Method 101, test condition B, 5% salt solution																											
	Vibration, High Frequency	MIL-STD-202, Method 204, SMB: test condition B (15 G's). SMC: test condition D (20 G's)																											
	Shock	MIL-STD-202, Method 213, SMB: test condition B, 75 G's @ 6 milliseconds, 1/2 sine. SMC: test condition C, 100 G's @ 6 milliseconds, 1/2 sine.																											
	Thermal Shock	MIL-STD-202, Method 107, test condition B, except high temperature shall be 85° C High temperature shall be 200° C for connectors using 200° C cables.																											
Moisture Resistance	MIL-STD-202, Method 106, when interface gasket is used. No measurement at high humidity. Insulation resistance shall be 200 MΩ minimum within five minutes after removal from humidity.																												
GENERAL	Connector Durability	500 matings minimum																											
	Contact Captivation	Unless otherwise specified, all connectors feature captivated contacts. When captivated the contacts will withstand 17,8 N (4 lbs.) minimum axial force. CECC 22 130 = 10 N(2.25 lb.)																											
	Cable Retention	When properly assembled to the compatible single braided coaxial cable, the retention is equal to the breaking strength of the cable.																											
	Body Plating Options	The following part number suffices can be specified for SMB/SMC Connectors: ..... 220 gold body ..... 910 nickel body ..... C90 nickel body																											

**STRAIGHT PLUGS AND JACKS**

Straight Crimp Plug

Part Number	Cable Numbers
B51 - 024 - 0000220	RG174/U, 316/U
B51 - 024 - 3196220	RG178/U, 196/U
B51 - 024 - 9399220	RD316, 179

Straight Crimp Bulkhead Jack

Part Number	Cable Numbers
051 - 027 - 0000220	RG174/U, 316/U
051 - 027 - 3196220	RG178/U, 196/U
051 - 027 - 9399220	RD316, 179

**RIGHT ANGLE PLUGS**

Right Angle Crimp Plug

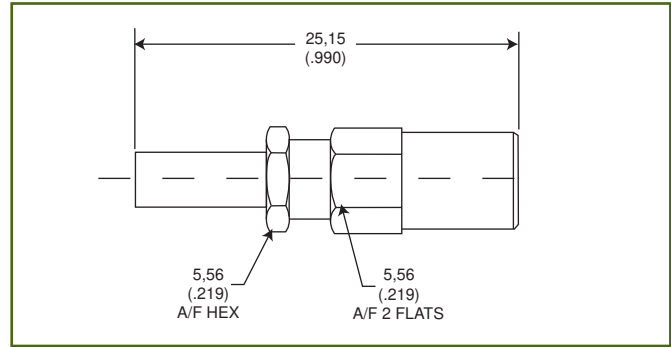
Part Number	Cable Numbers
B51 - 328 - 3188220	RG174/U, 316/U
B51 - 328 - 3196220	RG178/U, 196/U
B51 - 328 - 9399220	RD316, 179
B51 - 328 - 9019AU0	BT3002, T2C75024

**IN-SERIES ADAPTORS**

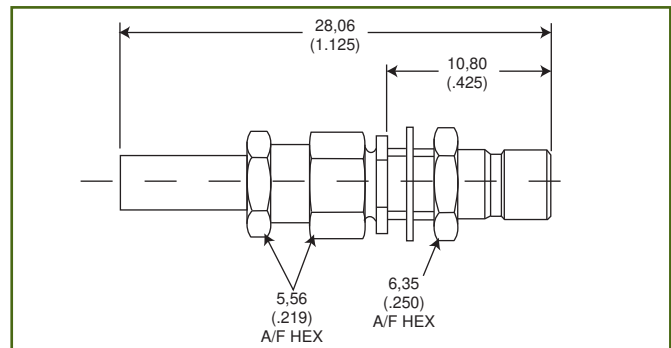
Jack to Jack Adaptor, Bulkhead Mounting

Part Number
051 - 075 - 0000220

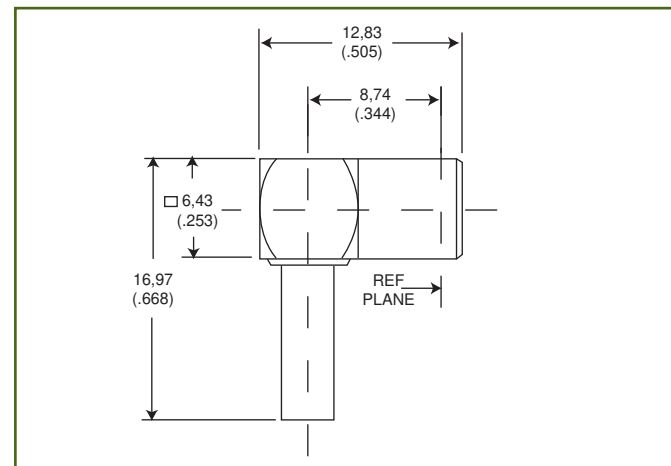
SMB connectors have solder center contacts.



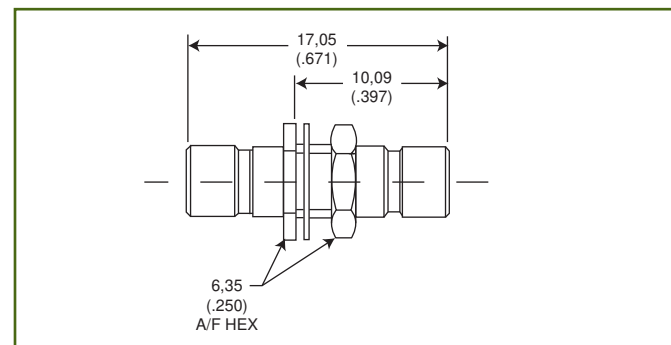
Assembly Instructions BAI-003 (Page 50)



Mounting Plan V (Page 40)  
Assembly Instructions BAI-003 (Page 50)



Assembly Instructions BAI-015 (Page 49)



Mounting Plan V (Page 40)

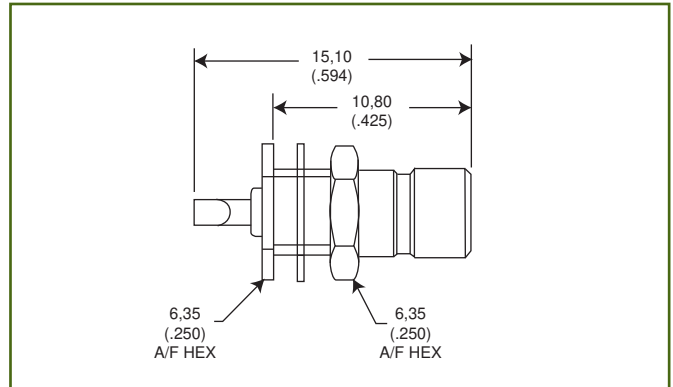


Dimensions shown in mm (inch)  
Specifications and dimensions subject to change

**BULKHEAD JACKS**

Straight Bulkhead Jack, Solder Pot,  
Mounting Nut Outside Panel

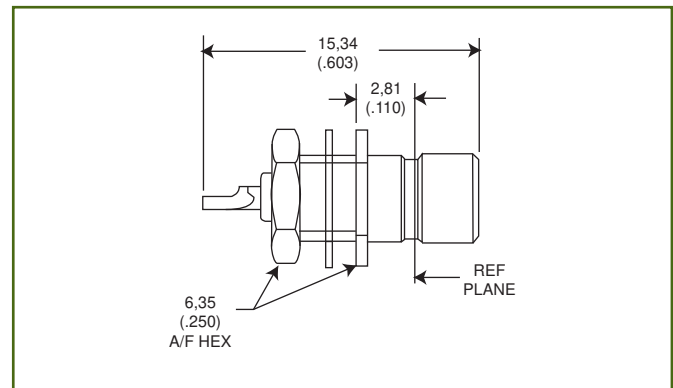
Part Number
051 - 043 - 0000220



Mounting Plan V (Page 40)

Straight Bulkhead Jack, Solder Pot,  
Mounting Nut Inside Panel

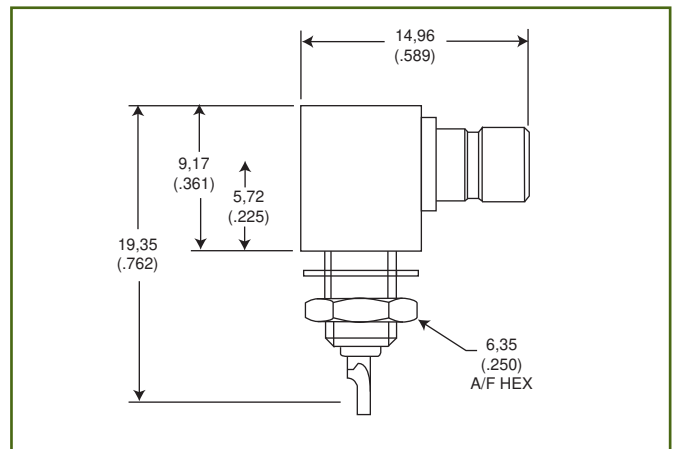
Part Number
051 - 045 - 0000220



Mounting Plan V (Page 40)

Right Angle Bulkhead Jack, Solder Pot,  
Mounting Nut Inside Panel

Part Number
051 - 047 - 0000220



Mounting Plan V (Page 40)



**PRINTED CIRCUIT BOARD JACKS**

SMB PCB preferred styles feature stepped legs. This allows the jacks to be raised from the surface of the PCB, thereby preventing the accumulation of soldering fluids and foreign bodies. A single piece conductor overcomes the problem of internal joint separation during continuous wave / flow soldering operations.

Straight PCB Jack, 1,00 (.039) sq Legs

Part Number

B51 - 351 - 0000220

Straight PCB Jack, 0,81 (.032) sq Legs

Part Number

B51 - 051 - 9029220

Right Angle PCB Jack, 1,00 (.039) sq Legs

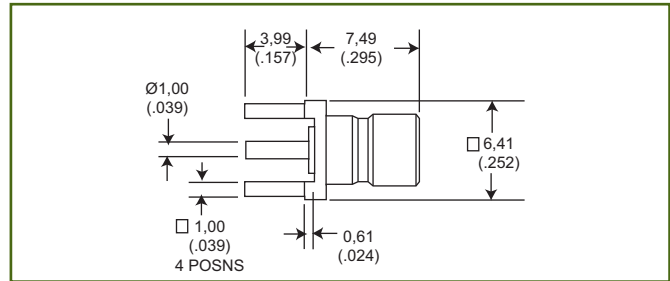
Part Number

B51 - 053 - 0000220

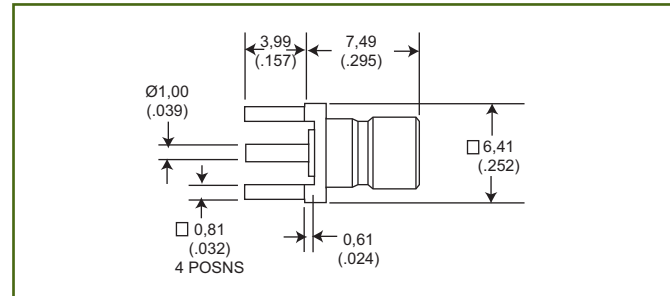
Right Angle PCB Jack, 0,81 (.032) sq Legs

Part Number

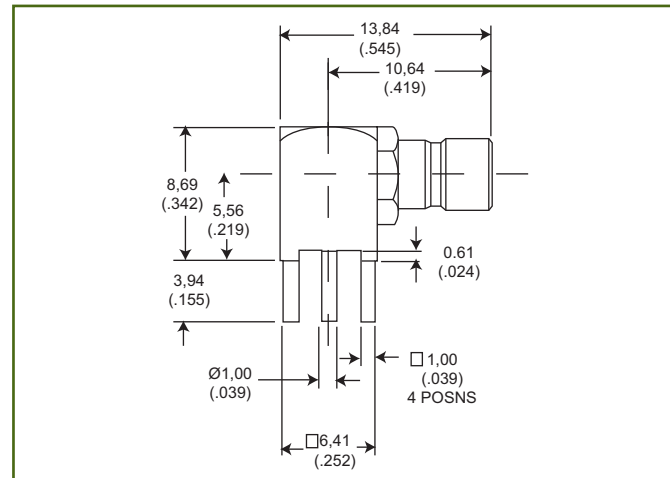
B51 - 053 - 9029220



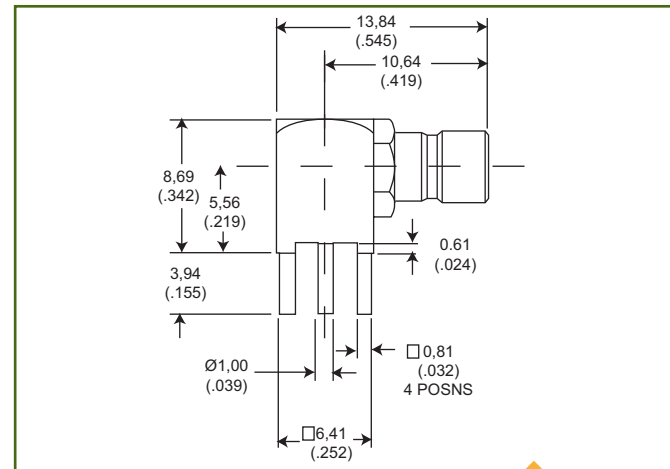
Mounting Plan A (Page 40)



Mounting Plan B (Page 40)



Mounting Plan A (Page 40)



Mounting Plan B (Page 40)



Dimensions shown in mm (inch)  
Specifications and dimensions subject to change



**STRAIGHT PLUGS AND JACKS**

Straight Clamp Plug

Part Number	Cable Numbers
050 - 007 - 0000220	RG174/U, 316/U

Straight Crimp Plug

Part Number	Cable Numbers
050 - 024 - 0000220	RG174/U, 316/U

Straight Crimp Bulkhead Jack

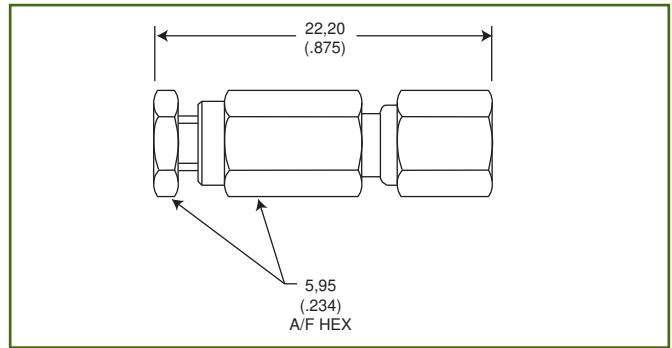
Part Number	Cable Numbers
050 - 027 - 0000220	RG174/U, 316/U

**RIGHT ANGLE PLUGS**

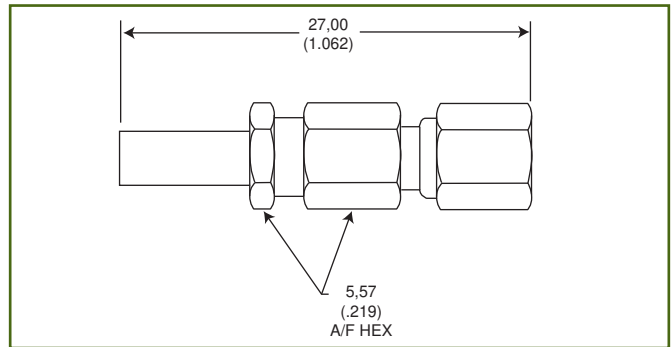
Right Angle Crimp Plug

Part Number	Cable Numbers
B50 - 328 - 3188220	RG174/U, 316/U
B50 - 328 - 9399220	RD316, 179

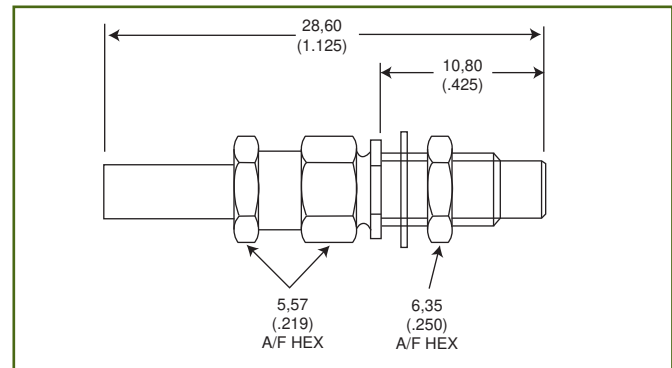
SMC CONNECTORS HAVE SOLDER CENTER CONTACTS



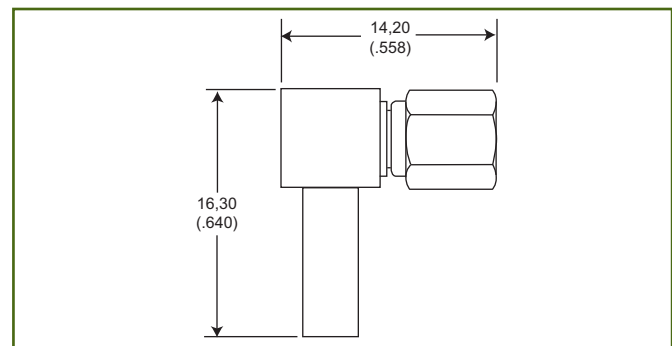
Assembly Instructions BAI-001 (Page 52)



Assembly Instructions BAI-003 (Page 50)



Mounting Plan V (Page 40)  
Assembly Instructions BAI-003 (Page 50)



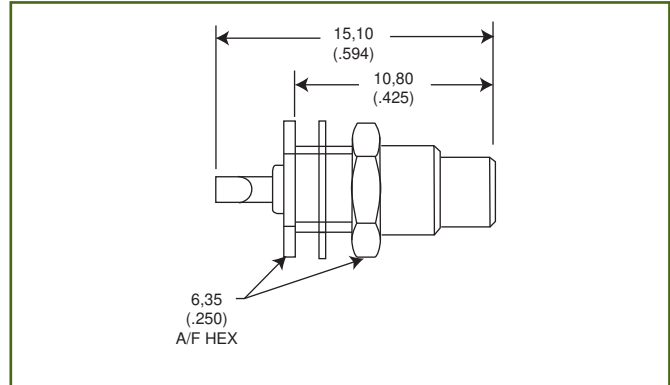
Assembly Instructions  
BAI-015 (Page 49)



**BULKHEAD JACKS**

Straight Bulkhead Jack, Solder Pot,  
Mounting Nut outside Panel

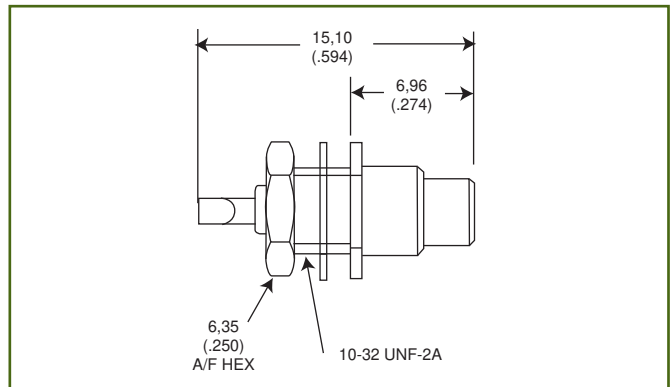
Part Number
050 - 043 - 0000220



Mounting Plan V (Page 40)

Straight Bulkhead Jack, Solder Pot ,  
Mounting Nut inside Panel

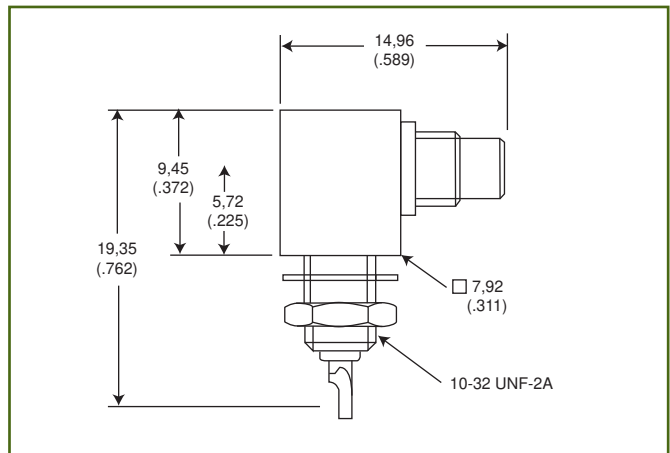
Part Number
050 - 045 - 0000220



Mounting Plan V (Page 40)

Right Angle Bulkhead Jack, Solder Pot,  
Mounting Nut inside Panel

Part Number
050 - 047 - 0000220



Mounting Plan V (Page 40)

Dimensions shown in mm (inch)  
Specifications and dimensions subject to change