RF COAXIAL CONNECTORS

February 1996

ITT Cannon

RF Coaxial Connectors

ITT Cannon is a company with the in-depth experience of an 80-plus year history and the innovative spirit of a dynamic enterprise. As a key part of this enterprise ITT Cannon RF Products has been providing highly reliable coaxial connectors for over 25 years to customers worldwide.

We are part of ITT Industries, a multi-disciplined, multinational company engaged in the design and manufacture of electronic components, automotive products and fluid handling controls/ instrumentation.

ITT Cannon operates globally and is active in many diverse markets including telecoms, medical electronics, instruments, military, microwave components, information systems and radar.

A global range of connectors and cable

The ITT Cannon RF Products complementary manufacturing sites in the UK and the USA have extensive manufacturing facilities which include precision machining, molding, pressing, finishing and assembly plant. Assembly of connectors is maintained by use of MRP II production control techniques and dedicated assembly equipment. In house plating facilities allow a wide range of plating finishes to be offered.

The company has its own independent environmental test laboratory which enables analysis and testing of raw materials, components and finished products. ITT Cannon is an approved manufacturer to ISO9001, BS9000, CECC, AQAP1 and CAA in the UK and MIL-C-39012 in the USA.

We recognise the importance of reduced time to market. Our market driven R & D teams use state-of-the-art Computer Aided Design (CAD) systems to ensure rapid product development. Test equipment includes network analysers with frequency capability to 40 GHz.

In addition to the manufacture of precision connectors the company also offers cable assembly facilities to customer specifications. Capability includes the manufacture of semi-rigid, flexible and high performance flexible cable assemblies.

The designs shown in this publication are not the entire range. Should you require styles not shown please contact our nearest Sales Department listed on the back cover.

assemblies

For high volume requirements we offer a design engineering service to develop products specific to a particular application.

Please contact ITT Cannon Product Management Group to discuss your current or planned project or to request samples, prices and delivery information.

In addition to its coaxial connectors ITT Cannon also offers a full selection of products that include a comprehensive range of industrial, military and aerospace connectors, switches, test accessories and network systems, services and components.

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Choose the connector series that fits your needs.

On pages 6 and 7 you will find a quick overview of each of the connector series in the ITT Cannon coaxial connector range. The chart on page 5 will assist you in selecting suitable cables for your application.

Use the color tabs on the publication edge to locate the section you want.

Each connector series has color tabs at a different position on the outside edge of the right hand pages in that section. This will help you get straight to the section you want.

Each series section has all the information needed to specify the connectors for your requirement.

On the first page of each section is an introduction to the product followed by full technical specifications and mating interface details as appropriate. The connector styles are grouped by connector type and are illustrated with dimensioned drawings.

Choose your part numbers.

Part numbers appear alongside the connector drawings and a part number explanation guide appears on page 5.

Refer to the Assembly Instructions

Detailed Assembly Instructions for most cable mounting connectors are included at the rear of the publication and the appropriate Assembly Instruction Number and the page on which it will be found are indicated by the connector drawing. Other Assembly Instructions may be obtained by contacting your nearest Sales Office.

Refer to the mounting hole dimensions

For those connectors requiring mounting holes in panel, bulkhead or printed circuit board, reference to the indicated Mounting Plan on pages 108 - 109 will provide recommended mounting hole dimensions. Mounting Plan references will be found under the connector drawing where appropriate.

Choose the appropriate tooling

Details of a range of Crimp Tools, Torque Wrenches and other tools to assist in the assembly and use of the ITT Cannon coaxial connector range can be found on page 140.

For your reference

Part Number Index
A full part number to page number index appears on page 144.

Cross Reference Lists
QPL part number and old to new part number cross reference lists will be found on page 143.

Product Safety Information
Essential information on the safe use and handling of ITT Cannon electrical connectors is given on page 148.

Glossary of Terms
Explanations of over 130 terms used in this publication and in RF and microwave technology can be found on pages 141 and 142.

Further information

In the event that you do not find everything you need in this publication and require further information or assistance please photocopy, complete and fax to us the form on page 146.

Connector/Cable Selection Guide

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

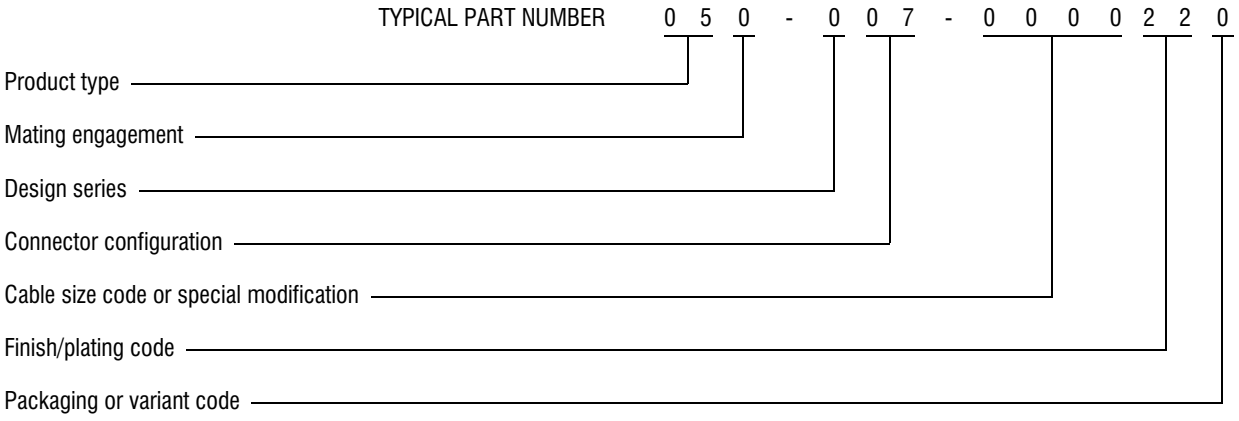
Cable numbers suitable for use with all cable mounting connectors are given opposite the connector part numbers in the series chosen.

Cable Number	Impedance (ohms)	Diameter of Jacket	Diameter of Outer Conductor (Max)	Diameter of Dielectric (Max)	Diameter of Center Conductor (Nom)
BT2001	75	4,60 (.181)	3,13 (.123)	2,45 (.096)	0,60 (.024)
BT2002*	75	5,30 (.209)	3,81 (.150)	2,45 (.096)	0,60 (.024)
BT2003*	75	6,90 (.272)	5,06 (.199)	3,70 (.146)	0,61 (.024)
BT3002	75	3,55 (.140)	2,85 (.112)	1,95 (.077)	0,31 (.012)
MIL-C-17/151	50	—	1,22 (.048)	0,97 (.038)	0,29 (.013)
M17/29-RG59	75	6,27 (.247)	4,85 (.191)	3,81 (.150)	0,56 (.022)
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)
RG59/U	75	6,25 (.246)	4,85 (.191)	3,81 (.150)	0,58 (.023)
RG62/U	93	6,32 (.249)	4,85 (.191)	3,84 (.151)	0,64 (.025)
RG140/U	75	6,12 (.241)	4,47 (.176)	3,84 (.151)	0,64 (.025)
RG174/U	50	2,92 (.115)	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)
RG180/U	95	3,68 (.145)	3,15 (.124)	2,67 (.105)	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)
RG195/U	95	3,94 (.155)	3,15 (.124)	2,67 (.105)	0,30 (.012)
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)
1694A	75	6,99 (.275)	5,44 (.214)	4,57 (.180)	1,02 (.040)
734	75	6,10 (.240)	5,21 (.205)	3,89 (.153)	0,79 (.031)
735A	75	3,51 (.138)	2,79 (.110)	2,01 (.079)	0,41 (.016)

* Double shielded

Part Number Guide

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



Quick Reference Selection Guide

	Frequency	Impedance	Cable Type	Coupling	Body Material	Body Finish
SMA - Precision Coaxial connectors for rugged environments.	DC - 18 GHz	50Ω	Flexible/Semi-rigid	Screw	Stainless steel or beryllium copper	Gold or passivated
SMA - Commercial Economic, brass bodied coaxial connectors	DC - 12.4 GHz	50Ω	Flexible	Screw	Brass and stainless steel	Gold or nickel
SMB Rapid connect/disconnect coaxial connectors	DC - 4 GHz	50Ω	Flexible	Snap-on	Brass	Gold or nickel
SMC Vibration resistant coaxial connectors	DC - 12.4 GHz	50Ω	Flexible	Screw	Brass	Gold or nickel
SSMB Microminiature rapid connect/disconnect coaxial connectors	DC - 4 GHz	50Ω	Flexible	Snap-on	Brass	Gold or nickel
SSMC Microminiature vibration resistant coaxial connectors	DC - 12.4 GHz	50Ω	Flexible	Screw	Brass	Gold or nickel
SMZ (Type 43) Rapid connect/disconnect coaxial connectors for telecommunications applications	DC - 4 GHz	75Ω	Flexible	Snap-on with latch	Copper or zinc alloy	Gold, nickel, tin/lead or zinc
1.0/2.3 Rapid connect/disconnect coaxial connectors for telecommunications applications	DC - 10 GHz	50Ω/75Ω	Flexible	Screw, snap-on, slide-on (with latch)	Brass	Gold or nickel
1.6/5.6 Coaxial connectors with optional coupling for telecommunications applications	DC - 1 GHz	75Ω	Flexible	Screw, snap-on, slide-on	Brass	Gold, nickel or silver
MCX Microminiature coaxial connector for RF screening applications	DC - 6 GHz	50Ω	Flexible/Semi-rigid	Snap-on	Brass	Gold or nickel
MPC - Coax Microminiature coaxial connectors for mobile telephone applications	DC - 2 GHz	50Ω	Flexible	Slide-on	Brass and beryllium copper	Gold and tin
Coaxial Terminators Provide permanant coaxial connections to printed circuit boards	DC - 4 GHz	N/A	Flexible	N/A	Copper alloy	Electro-plated tin
SMA Slide-On Plug For reliable and fast testing of systems fitted with SMA jack connectors	DC - 18 GHz	50Ω	N/A	Slide-on	Stainless steel	Gold or passivated
SMS (BMB) Blind mate coaxial connectors for rack and panel applications	DC - 18 GHz	50Ω	Flexible/Semi-rigid	Slide-on	Stainless steel and beryllium copper	Gold or passivated

Quick Reference Selection Guide

	Frequency	Impedance	Cable Type	Coupling	Body Material	Body Finish
SIS Blind mate coaxial connectors for multiple module to module connections	DC - 18 GHz	50Ω	N/A	Slide-on	Stainless steel and beryllium copper	Gold
SSIS Microminiature blind mate connectors for multiple module to module connections	DC - 18 GHz	50Ω	N/A	Slide-on	Stainless steel and beryllium copper	Gold
CMM Self aligning microminiature blind mate connectors with non-butting interface	DC - 26.5 GHz	50Ω	Semi-rigid	Slide-on	Stainless steel and beryllium copper	Gold
QT BNC Quick termination version of standard BNC series coaxial connector	DC - 2 GHz	75Ω	Flexible	Bayonet latch	Phosphor bronze	Nickel
Between Series Adaptors High efficiency transitions between various coaxial connector series	DC - 18 GHz	50Ω/75Ω	N/A	Various	Stainless steel or brass	Gold or passivated
Sealflex 2 High performance flexible microwave cable assemblies	DC - 18 GHz	50Ω	Flexible	Various	Stainless steel (connectors)	Passivated (connectors)

Cable Assembly Service

A precision cable assembly facility is available from ITT Cannon for the manufacture and testing of a wide range of cable/connector assemblies to customer drawings and specifications.

By using ITT 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.

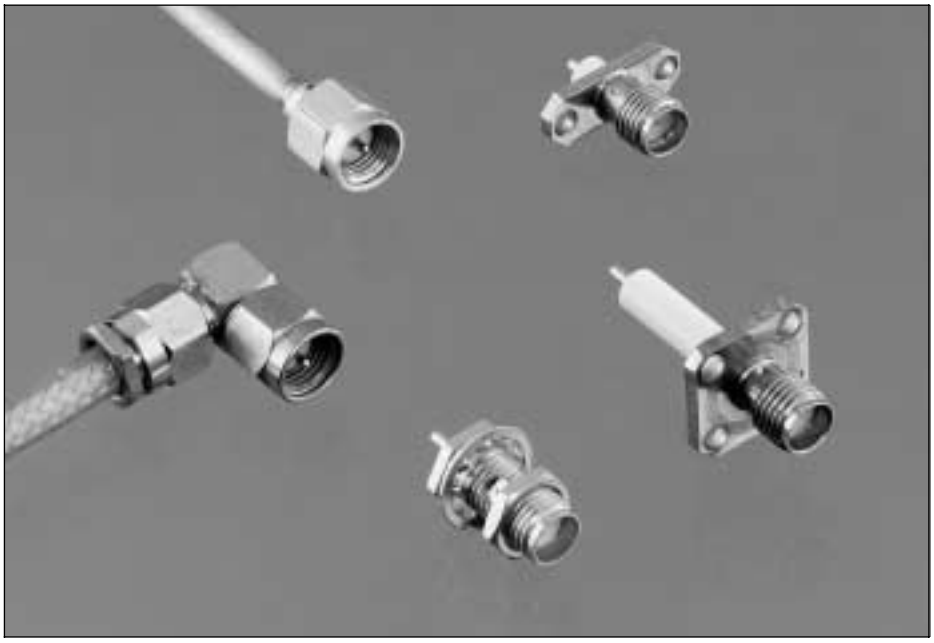
Flexible, semi-rigid and Sealflex 2 RF and microwave coaxial cable assemblies for DC to 40 GHz are manufactured to the most complex customer designs and exacting mechanical and electrical tolerances. A full range of MIL-C-17G and proprietary flexible and semi-rigid cables are used as well as the Sealflex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

Our staff will be pleased to assist in the selection of the components and optimization of assembly performance. Contact our Sales Department for details.

Introduction

ITT Cannon 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.

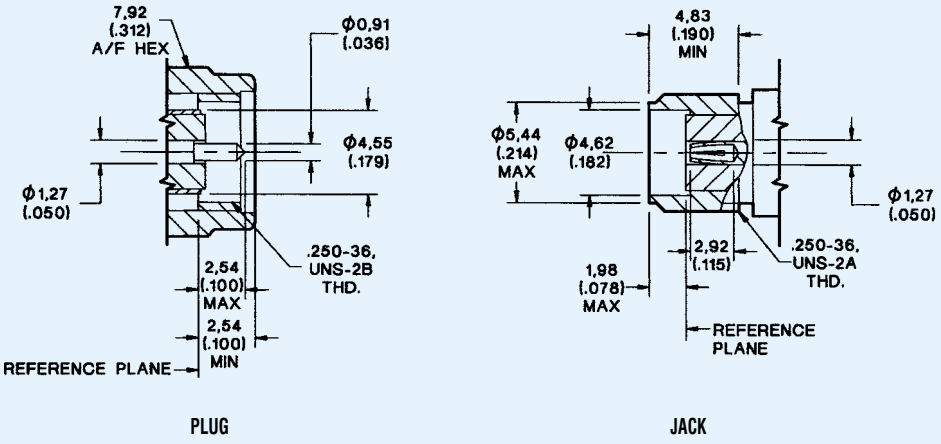
ITT Cannon also offers a range of Commercial SMA, brass bodied connectors with stainless steel coupling nuts. These offer a more economic product for a slightly reduced performance. They are supplied with either gold or nickel plating. Coupling nuts are gold plated or passivated finish.



Features / Benefits

- Standoffs on PCB mounts of Commercial SMA series for cleaning and inspection
- Stainless steel coupling nuts with gold or passivated finish on cable plugs
- SMA plugs are environmentally sealed using a gasket
- Intermateable with all SMA connectors currently available
- Crimp/solder contact on straight plug for performance and speed of assembly on Commercial SMA series

Mating Interfaces



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Dimensions are shown in mm (inch)
Dimensions subject to change

Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 18.0 GHz
	Voltage Rating	Connectors for RG178/U series cable: At Sea Level = 170 Vrms. At 21 km (70k feet) = 45 Vrms Connectors for RG316/U series cable: At Sea Level = 250 Vrms. At 21 km (70k feet) = 65 Vrms Connectors for RG142/U series cable: At Sea Level = 335 Vrms. At 21 km (70k feet) = 85 Vrms
	Insulation Resistance	5000 MΩ minimum
	Contact Resistance	Center Contact = 3.0 mΩ maximum initial. 4.0 mΩ maximum after environment Outer Contact = 2.0 mΩ maximum initial. 2.0 mΩ maximum after environment Braid to Body = 0.5 mΩ 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 50 Ω 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)	Connectors used with RG316/U series cable = 750 Vrms @ Sea Level
	Corona Level	Connectors used with RG316/U series cable = 190 V @ 21 km (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	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 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 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.

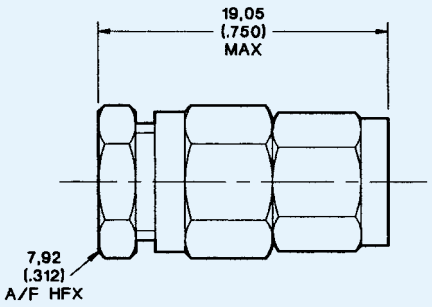
...310 gold body, gold coupling nut

...890 passivated body & coupling nut
except Direct Solder Types; gold body, passivated coupling nut

Clamp Type Cable Connectors For Flexible Cable

Straight Plug, Captive Contact

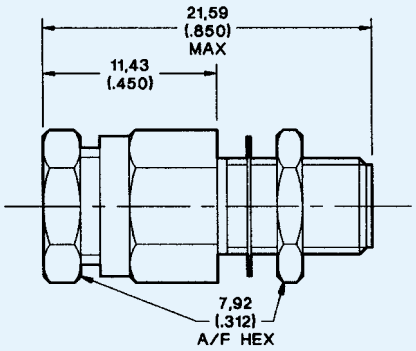
Part Number	Cable Numbers
050-607-3188890	RG174/U, 316/U



Assembly Instruction AI-106 (Page 113)

Bulkhead Jack, Captive Contact

Part Number	Cable Numbers
050-610-3188890	RG174/U, 316/U

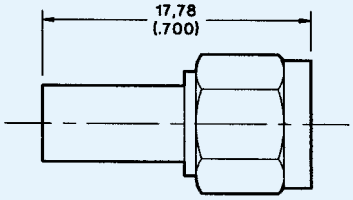


Mounting Plan W (Page 109). Assembly Instruction AI-106 (Page 113)

Crimp Type Cable Connectors For Flexible Cable

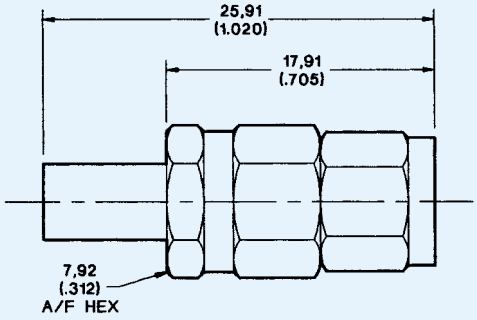
Straight Plug, Non-Captive Contact

Part Number	Cable Numbers	Assembly Instruction
050-622-9188890	RG174/U, 316/U	AI-102 (Page 112)
050-622-9875890	RD316	AI-236 (Page 112)



Straight Plug Captive Contact

Part Number	Cable Numbers
A50-624-9188890	RG174/U, 316/U
A50-624-9875890	RD316
A50-624-9142890	RG142/U, 400/U

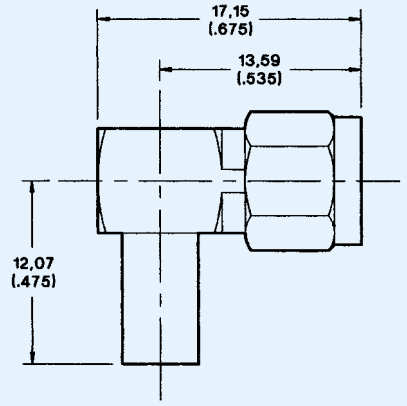


Assembly Instruction AI-703 (Page 125)

Crimp Type Cable Connectors for Flexible Cable

Right Angle Plug, Captive Contact

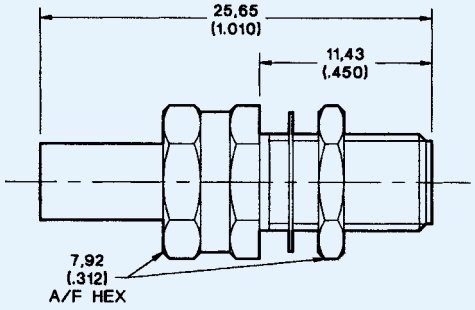
Part Number	Cable Numbers
050-628-9142890	RG142/U, 400/U
050-628-9188890	RG174/U, 316/U
050-628-9196890	RG178/U, 196/U
050-628-9875890	RD316



Assembly Instruction AI-90 (Page 110)

Bulkhead Jack, Captive Contact

Part Number	Cable Numbers
050-627-9142890	RG142/U, 400/U
050-627-9188890	RG174/U, 316/U
050-627-9875890	RD316

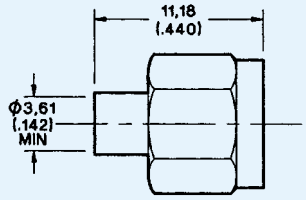


Mounting Plan W (Page 109). Assembly Instruction AI-227 (Page 116)

Direct Solder Type Cable Connectors for Semi-Rigid Cable

Straight Plug Without Center Contact*

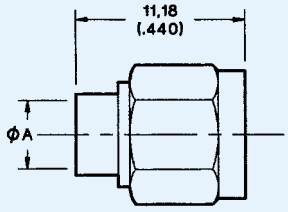
Part Number	Cable Number
055-607-2003890	RG402/U



Assembly Instruction AI-302 (Page 118)

Straight Plug With Center Contact

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



Assembly Instruction AI-252 (Page 117)

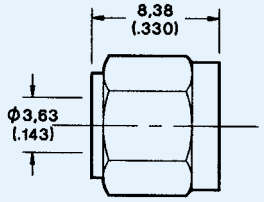
* Center conductor of cable is used as contact.

Direct Solder Type Cable Connectors for Semi-Rigid Cable

Straight Plug, Solderless Version, Without Center Contact*

Part Number	Cable Number
055-624-6703890	RG402/U

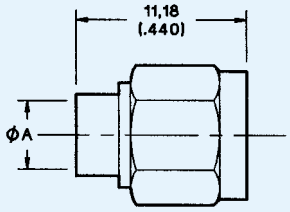
* Center conductor of cable is used as contact.



Assembly Instruction AI-507 (Page 123)

Straight Plug, Solderless Version, With Center Contact

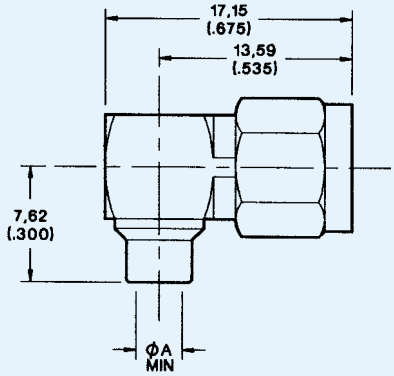
Part Number	Cable Number	A
055-607-6702890	RG405/U	2,20 (.088)
055-607-6203890	RG402/U	3,60 (.142)



Assembly Instruction AI-521 (Page 123)

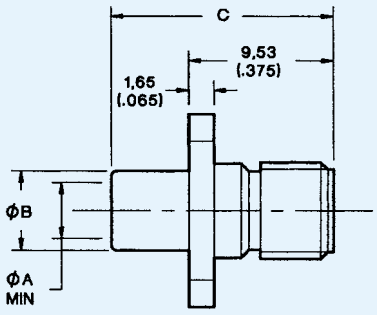
Right Angle Plug

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



Assembly Instruction AI-98 (Page 111)

Flange Mount Panel Jack



Assembly Instruction AI-278 (Page 117)

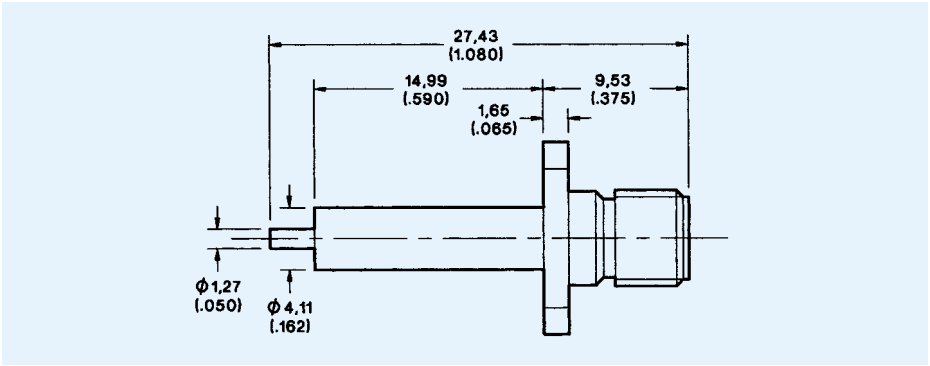
Part Numbers		Cable	Dimensions		
Square Flange	Narrow Flange	Number	A	B	C
055-604-9172310	055-604-9272310	RG405/U	2,20 (.088)	3,05 (.120)	12,70 (.500)
055-604-9173310	055-604-9273310	RG402/U	3,60 (.142)	4,68 (.184)	14,28 (.560)

Dimensions are shown in mm (inch)
Dimensions subject to change

Flange Mount Receptacles

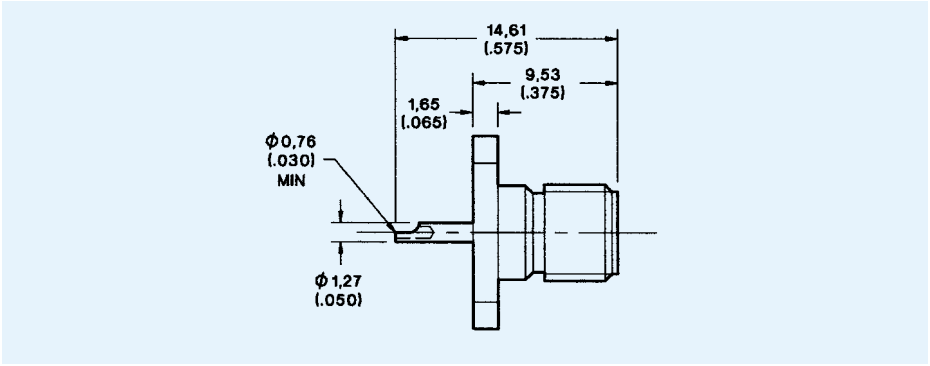
Straight Jack, Stub Contact, Extended Dielectric

Part Numbers	
Square Flange	Narrow Flange
A50-645-4520890	A50-645-4540890



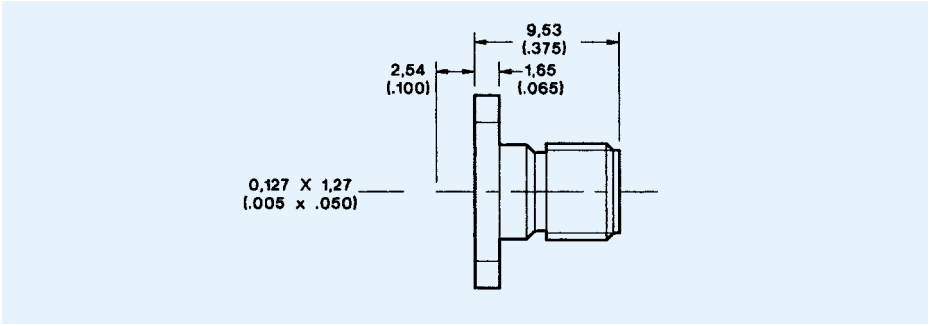
Straight Jack, Solder Pot Contact, Flush Dielectric

Part Numbers	
Square Flange	Narrow Flange
A50-645-4504890	A50-645-4526890

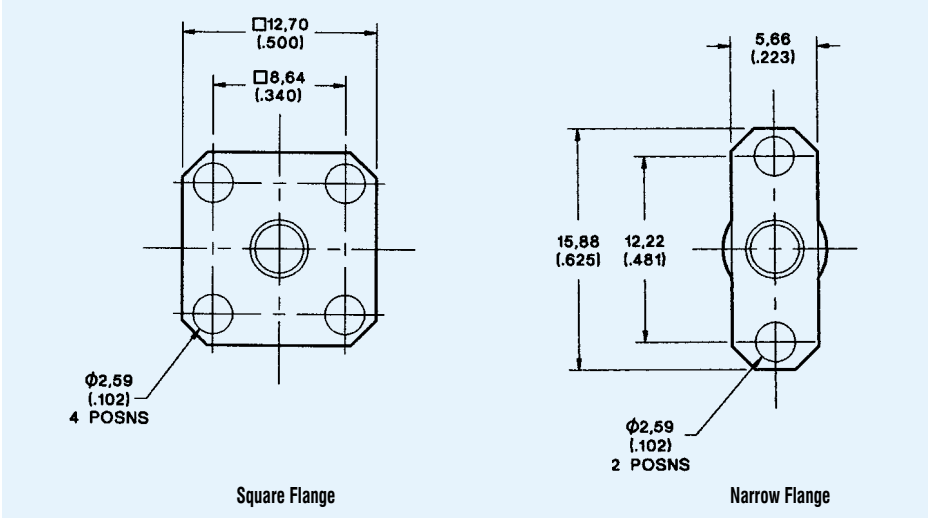


Straight Jack, Tab Contact, Flush Dielectric

Part Numbers	
Square Flange	Narrow Flange
A50-645-4575890	A50-645-4528890



Flange Dimensions for Flange Mount Receptacles and Panel Jacks.

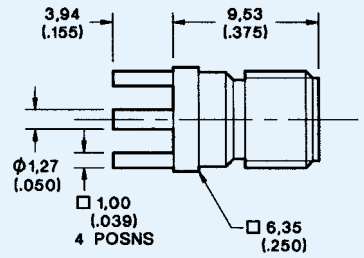


ALL FLANGE MOUNT RECEPTACLES HAVE CAPTIVATED CONTACTS

Printed Circuit Receptacles

Straight Jack

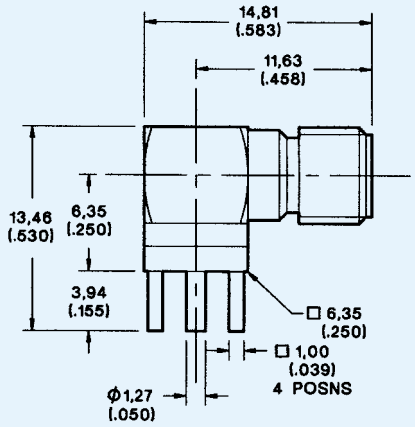
Part Number
050-651-0000310



Mounting Plan D (Page 108)

Right Angle Jack

Part Number
050-653-0000310

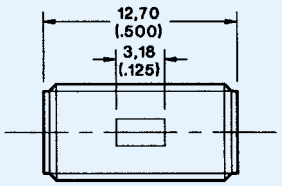


Mounting Plan D (Page 108)

In-Series Adaptors

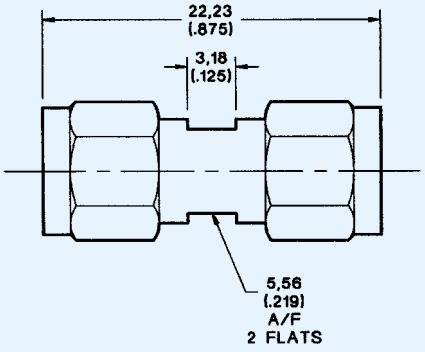
Jack to Jack Adaptor, Straight

Part Number
050-672-0000890



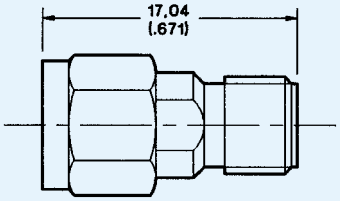
Plug to Plug Adaptor, Straight

Part Number
050-673-0000890



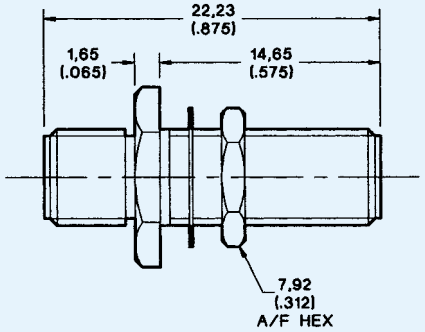
Plug to Jack Adaptor, Straight

Part Number
050-674-0000890



Jack to Jack Adaptor, Bulkhead Mount, Straight

Part Number
050-675-0000890

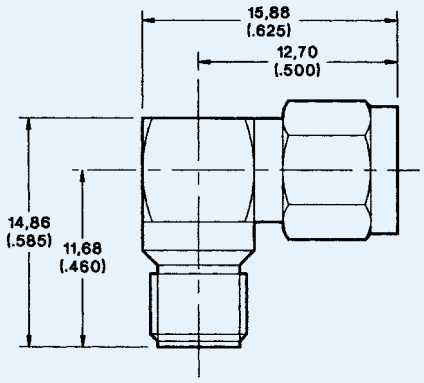


Mounting Plan W (Page 109)

In-Series Adaptors

Plug to Jack Adaptor, Right Angle

Part Number
050-678-0000890



Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 12.4 GHz
	Voltage Rating	Connectors for RG316/U series cable . . . . At Sea Level = 250 Vrms. At 21 km (70k feet) = 65 Vrms Uncabled receptacles . . . . . At Sea Level = 335 Vrms. At 21 km (70k feet) = 85 Vrms
	Insulation Resistance	5000 MΩ minimum
	Contact Resistance	Straight cable connectors = 3.0 mΩ maximum initial. 4.0 mΩ maximum after environment R/A cable connectors = 3.0 mΩ maximum initial. 2.0 mΩ maximum after environment Outer contact = 2.0 mΩ maximum Braid to body (gold plated) = 0.5 mΩ maximum Braid to body (nickel or passivated) = 5.0 mΩ maximum
	Insertion Loss	Straight cable connectors = 0.06 × $\sqrt{\text{freq. GHz}}$ tested at 6 GHz Right angle cable connectors = 0.15 × $\sqrt{\text{freq. GHz}}$ tested at 6 GHz
	RF Leakage	−60 dB minimum @ 2.5 GHz
	Voltage Standing Wave Ratio (VSWR) To 12.4 GHz or 80% of upper cut-off frequency of the cable, whichever is lower. Applicable to 50 Ω cables only. (F = GHz)	Connector configuration Cable group / Straight / Right Angle RG316/U braided / 1.15 + .02F / 1.15 + .03F
	Dielectric Withstanding Voltage (DWV)	Connectors used with RG316/U series cable = 750 Vrms @ Sea Level Uncoupled receptacles = 1000 Vrms @ Sea Level
	Corona Level	Connectors used with RG316/U series cable = 190 V @ 21 km (70k feet) minimum Uncoupled receptacles = 250 V @ 21 km (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. (Captivated contacts)
	Mating Torque	0.8 Nm to 1.1 Nm (7 to 10 in. lbs.)
	Coupling Nut Retention	267 N (60 lbs.) minimum
	Materials	Body, body components: Brass. Coupling nut: Non-magnetic stainless steel. Female Contacts: Beryllium copper. Male contacts: Brass. Insulators: PTFE or Tefzel Crimp ferrule: Copper alloy. Gaskets: Silicone rubber
	Finish/Plating	Center Contacts: Gold Plated. Other Metal Parts: Gold 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, test condition D (20 G's)
	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.
GENERAL	Connector Durability	500 matings minimum
	Contact Captivation	Unless otherwise specified, all connectors feature captivated contacts. When captivated the contacts will withstand 22.2 N (5 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

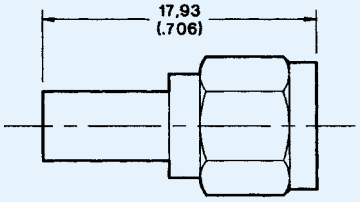
The following part number suffices can be specified for Commercial SMA Connectors:

...210 gold body, gold coupling nut
...910 nickel body, passivated coupling nut
...890 gold body, passivated coupling nut

Plugs and Jacks

Straight Cable Plug

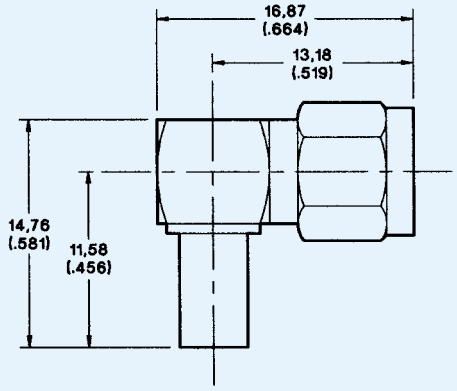
Part Number	Cable Numbers
050-E22-9188210	RG174/U, 316/U
050-E22-9141210	RG58/U, 141/U
050-E22-9142210	RG142/U, 400/U
050-E22-9875210	RD316



Assembly Instruction AI-771 (Page 112)

Right Angle Cable Plug

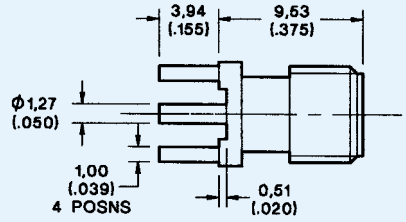
Part Number	Cable Numbers
A50-E28-9188210	RG174/U, 316/U
050-E28-9141210	RG58/U, 141/U
050-E28-9142210	RG142/U, 400/U
050-E28-9196210	RG178/U, 196/U
A50-E28-9875210	RD316



Assembly Instruction AI-773 (Page 110)

Straight PCB Jack

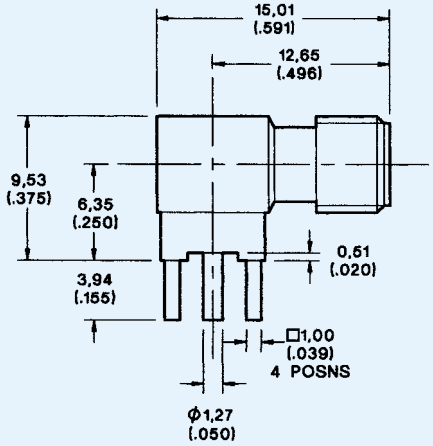
Part Number
050-E51-0000210



Mounting Plan D (Page 108)

Right Angle PCB Jack

Part Number
A50-E53-0000210

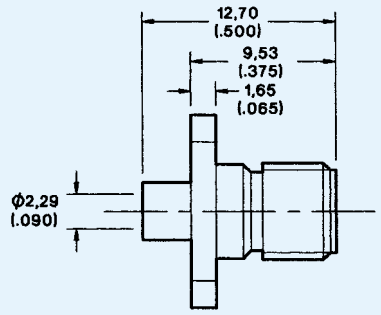


Mounting Plan D (Page 108)

Flange Mount Connectors

Flange Mount Jack, Non-Captive Contact

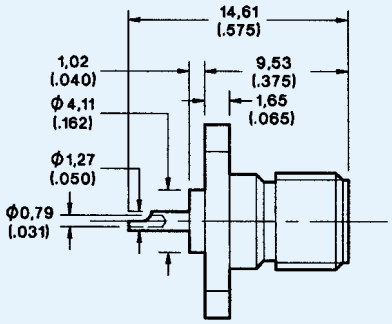
Part Number	Cable Number
Narrow Flange	
050-E04-9702210	RG405/U



Assembly Instruction AI-770 (Page 128)

Flange Mount Jack Receptacle

Part Number
Narrow Flange
050-E45-0000210



Flange mounting details are shown on page 13.

Introduction

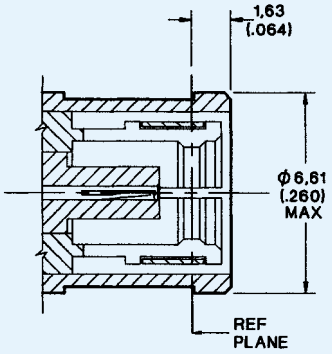
ITT Cannon's SMB Snap-on and SMC Screw-on subminiature coaxial connectors have been specifically engineered for high performance and high reliability applications in both military and commercial equipments operating at frequencies up to 4 GHz (SMB) and 12.4 GHz (SMC).

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 50ohms.

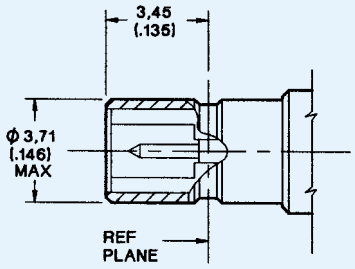
ITT Cannon SMB/SMC connectors are compatible with all SMB/SMC type connectors conforming with MIL-C-39012, BS9210, UTE C93 561, UTE C93 562, CCEC 22130 and CCEC 22140.

Mating Interfaces

SMB (Snap-on)

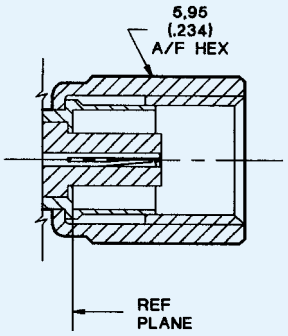


PLUG

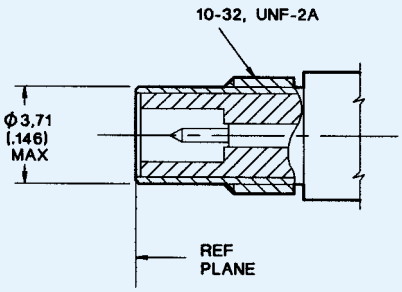


JACK

SMC (Screw-on)



PLUG



JACK

NOTES

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

Specifications

ELECTRICAL	Impedance	50 Ω
	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 Vrms. At 21 km (70k feet) = 75 Vrms Connectors for RG188/U series cable: At Sea Level = 400 Vrms. At 21 km (70k feet) = 100 Vrms
	Insulation Resistance	1000 MΩ minimum
	Contact Resistance	Center Contact = 6.0 mΩ maximum initial. 8.0 mΩ maximum after environment Outer Contact = 1.0 mΩ maximum initial. 1.5 mΩ maximum after environment Braid to Body = 1.0 mΩ 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)	Mating Engagement SMB: Straight — RG196/U Series: 1.30 + .04F; RG188/U Series: 1.25 + .04F SMB: Rt. Angle — RG196/U Series: 1.45 + .06F; RG188/U Series: 1.35 + .04F SMC: Straight — RG196/U Series: 1.25 + .04F; RG188/U Series: 1.20 + .04F SMC: Rt. Angle — RG196/U Series: 1.40 + .06F; RG188/U Series: 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 (14lbs.) 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 or nickel plated 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 (4.0 lbs.) minimum axial force. CECC 22130 = 10 N (2.25 lb.)
	Cable Retention	When properly assembled to the compatible 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.

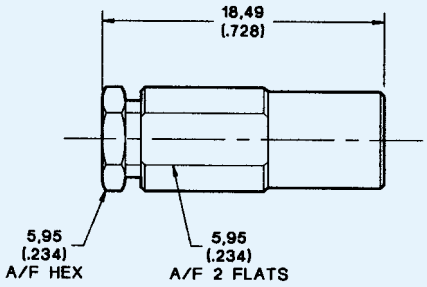
...220 gold body
...910 nickel body
...C90 nickel body

Straight Plugs and Jacks

SMB CONNECTORS HAVE SOLDER CENTER CONTACTS

Straight Clamp Plug

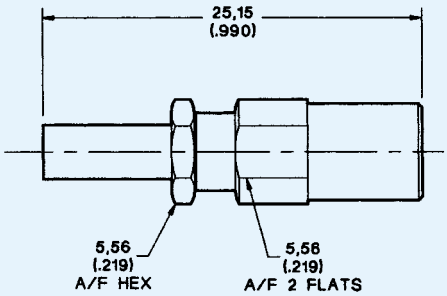
Part Number	Cable Numbers
B51-007-0000220	RG174/U, 316/U
B51-007-3196220	RG178/U, 196/U



Assembly Instruction BBAI-1213 (Page 135)

Straight Crimp Plug

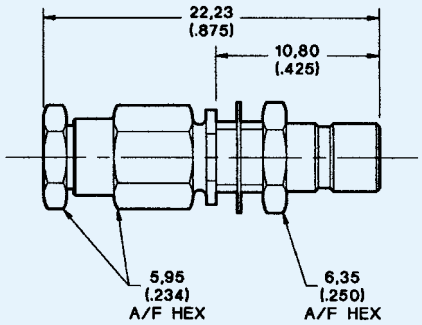
Part Number	Cable Numbers
B51-024-0000220	RG174/U, 316/U
B51-024-3196220	RG178/U, 196/U
B51-024-9399220	RD316, 179



Assembly Instruction BAI-003 (Page 122)

Straight Clamp Bulkhead Jack

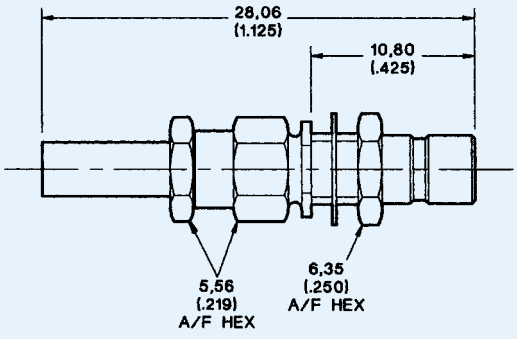
Part Number	Cable Numbers
051-010-0000220	RG174/U, 316/U
051-010-3196220	RG178/U, 196/U



Mounting Plan V (Page 109). Assembly Instruction BAI-001 (Page 130)

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



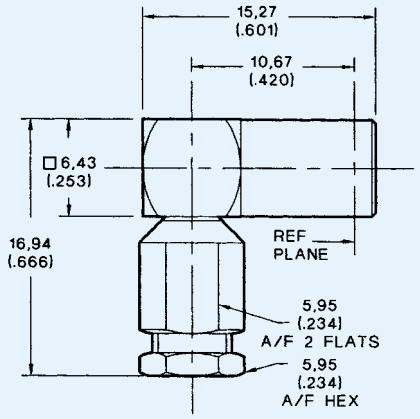
Mounting Plan V (Page 109). Assembly Instruction BAI-003 (Page 122)

Right Angle Plugs

SMB CONNECTORS HAVE SOLDER CENTER CONTACTS

Right Angle Clamp Plug

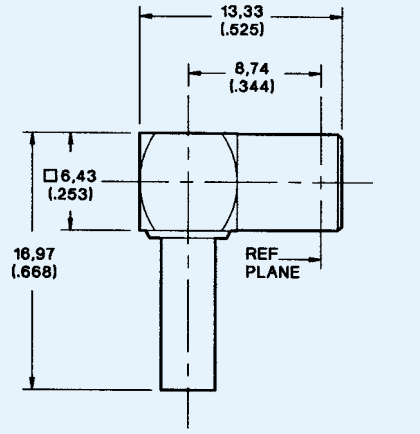
Part Number	Cable Numbers
B51-011-0000220	RG174/U, 316/U
B51-011-3196220	RG178/U, 196/U



Assembly Instruction BBAI-1221 (Page 136)

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

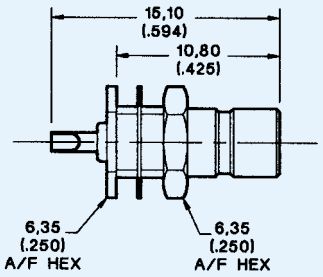


Assembly Instruction BAI-015 (Page 120)

Bulkhead Jacks

Straight Bulkhead Jack, Solder Pot, Mounting Nut Outside Panel

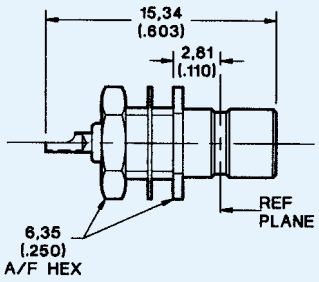
Part Number
051-043-0000220



Mounting Plan V (Page 109)

Straight Bulkhead Jack, Solder Pot, Mounting Nut Inside Panel

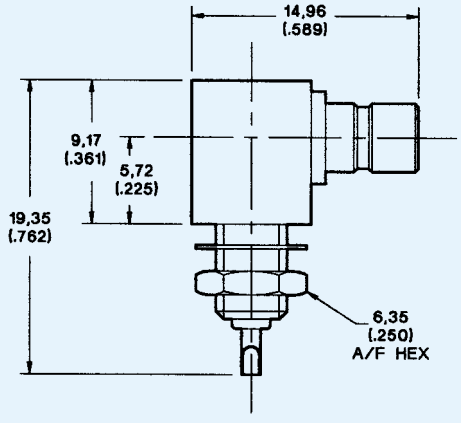
Part Number
051-045-0000220



Mounting Plan V (Page 109)

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

Part Number
051-047-0000220



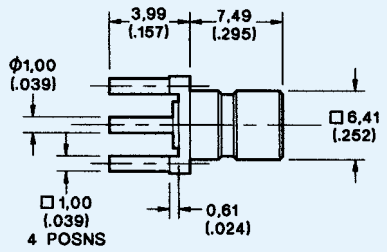
Mounting Plan V (Page 109)

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

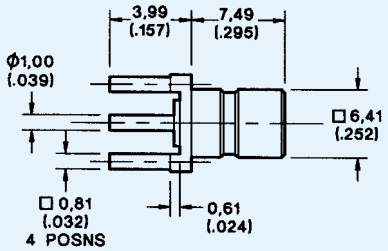
Part Number
B51-351-0000220



Mounting Plan A (Page 108)

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

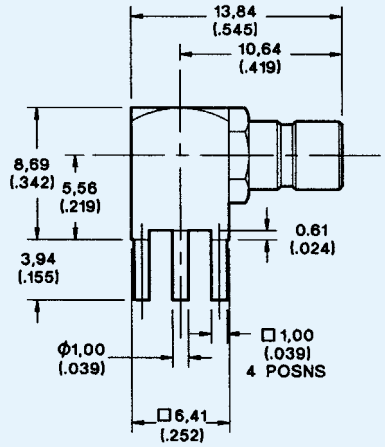
Part Number
B51-051-9029220



Mounting Plan B (Page 108)

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

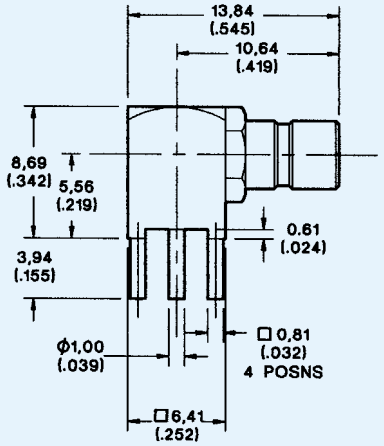
Part Number
B51-053-0000220



Mounting Plan A (Page 108)

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

Part Number
B51-053-9029220

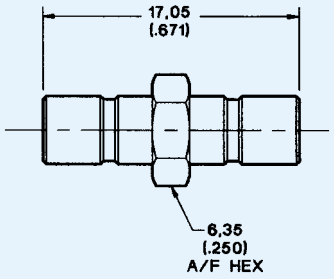


Mounting Plan B (Page 108)

In-Series Adaptors

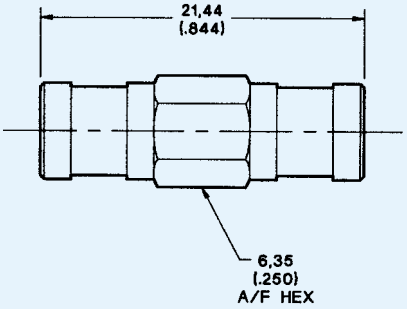
Jack to Jack Adaptor

Part Number
051-072-0000220



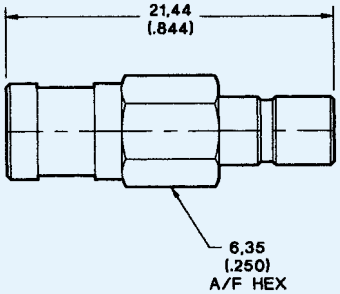
Plug to Plug Adaptor

Part Number
051-073-0000220



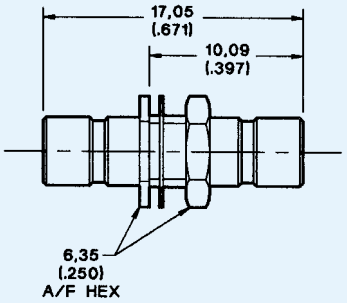
Plug to Jack Adaptor

Part Number
051-074-0000220



Jack to Jack Adaptor, Bulkhead Mounting

Part Number
051-075-0000220



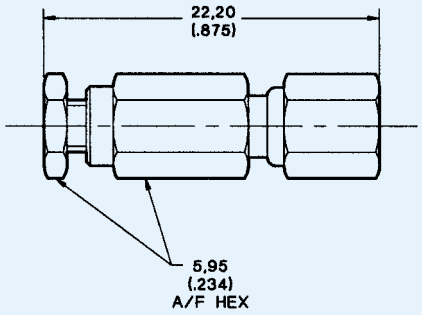
Mounting Plan V (Page 109)

Straight Plugs and Jacks

SMC CONNECTORS HAVE SOLDER CENTER CONTACTS

Straight Clamp Plug

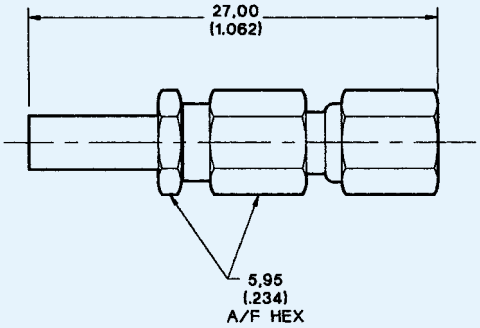
Part Number	Cable Numbers
050-007-0000220	RG174/U, 316/U
050-007-3196220	RG178/U, 196/U



Assembly Instruction BAI-001 (Page 130)

Straight Crimp Plug

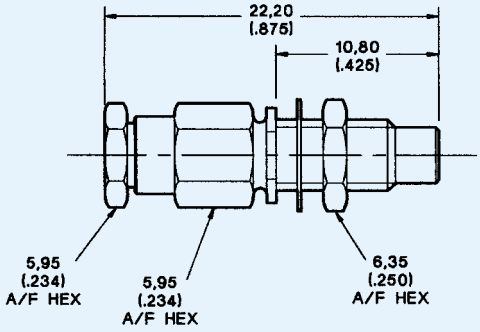
Part Number	Cable Numbers
050-024-0000220	RG174/U, 316/U
050-024-3196220	RG178/U, 196/U
050-024-9399220	RD316, 179



Assembly Instruction BAI-003 (Page 122)

Straight Clamp Bulkhead Jack

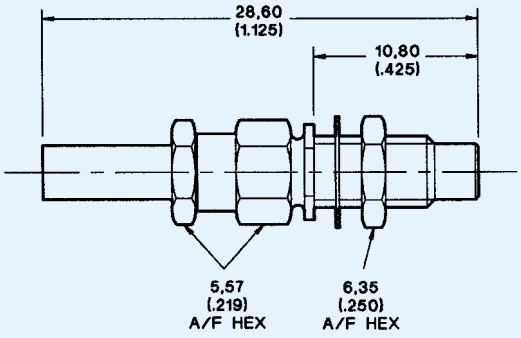
Part Number	Cable Numbers
050-010-0000220	RG174/U, 316/U



Mounting Plan V (Page 109). Assembly Instruction BAI-001 (Page 130)

Straight Crimp Bulkhead Jack

Part Number	Cable Numbers
050-027-0000220	RG174/U, 316/U
050-027-9399220	RD316, 179



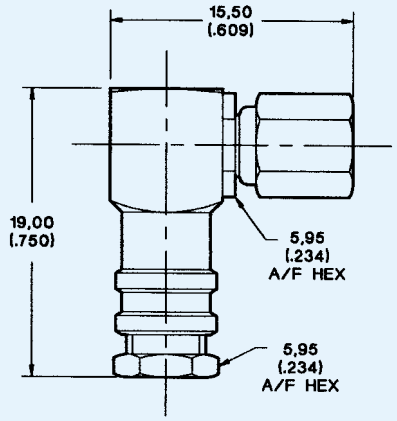
Mounting Plan V (Page 109). Assembly Instruction BAI-003 (Page 122)

Plugs

SMC CONNECTORS HAVE SOLDER CENTER CONTACTS

Right Angle Clamp Plug

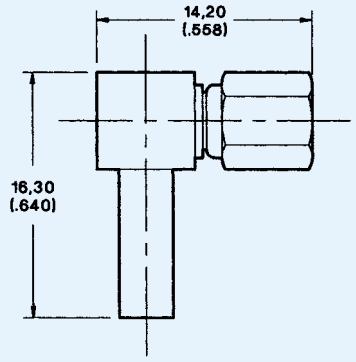
Part Number	Cable Numbers
050-011-0000220	RG174/U, 316/U



Assembly Instruction BAI-002 (Apply ITT Cannon Sales Dept.)

Right Angle Crimp Plug

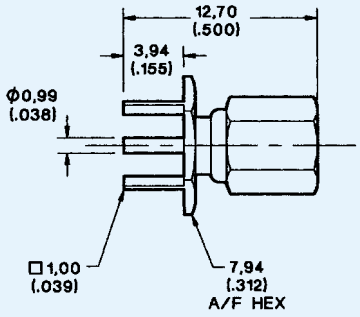
Part Number	Cable Numbers
B50-328-3188220	RG174/U, 316/U
B50-328-9399220	RD316, 179



Assembly Instruction BAI-015 (Page 120)

Straight PCB Plug

Part Number
050-052-0000220

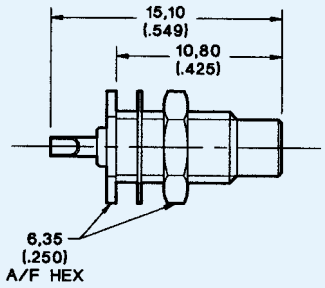


Mounting Plan A (Page 108)

Bulkhead Jacks

Straight Bulkhead Jack, Solder Pot, Mounting Nut Outside Panel

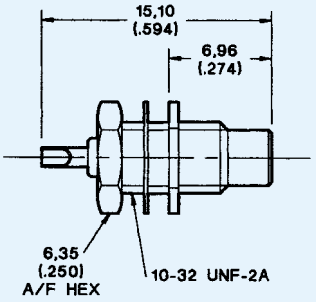
Part Number
050-043-0000220



Mounting Plan V (Page 109)

Straight Bulkhead Jack, Solder Pot, Mounting Nut Inside Panel

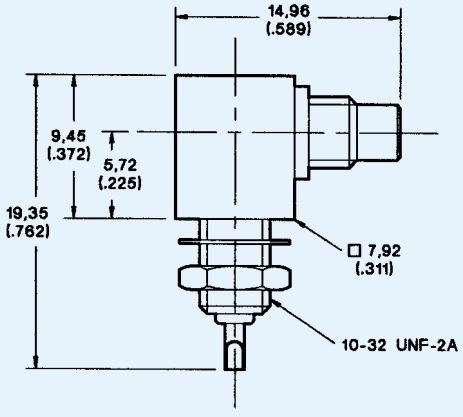
Part Number
050-045-0000220



Mounting Plan V (Page 109)

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

Part Number
050-047-0000220



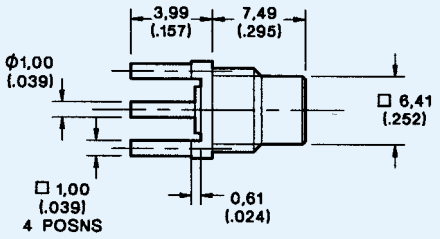
Mounting Plan V (Page 109)

Printed Circuit Board Jacks

SMC 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

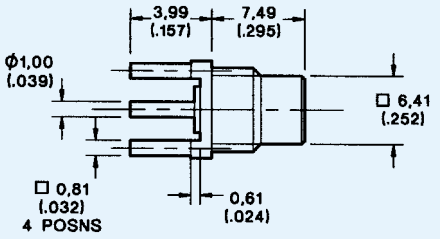
Part Number
B50-051-0000220



Mounting Plan A (Page 108)

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

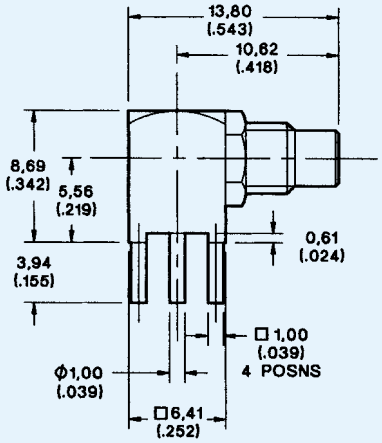
Part Number
B50-051-9019220



Mounting Plan B (Page 108)

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

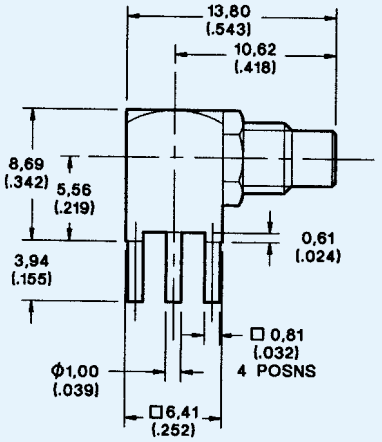
Part Number
B50-053-0000220



Mounting Plan A (Page 108)

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

Part Number
B50-053-9019220



Mounting Plan B (Page 108)

Dimensions are shown in mm (inch)
Dimensions subject to change

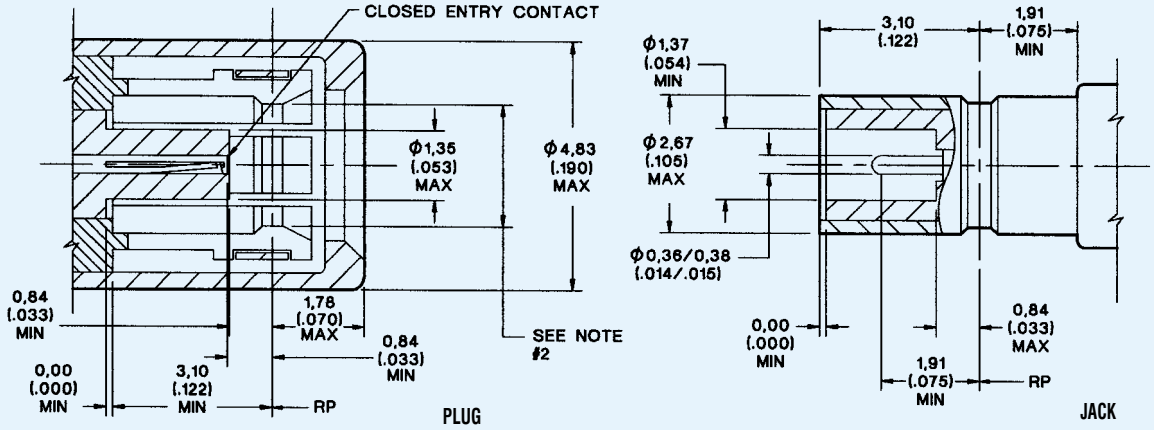
Introduction

This range of 50 ohm microminiature radio frequency connectors is suitable for both military and commercial equipment operating at frequencies up to 4 GHz (SSMB) and 12.4 GHz (SSMC). They provide a choice of Snap-on (SSMB) or Screw-on (SSMC) and are available for a wide range of flexible cables.

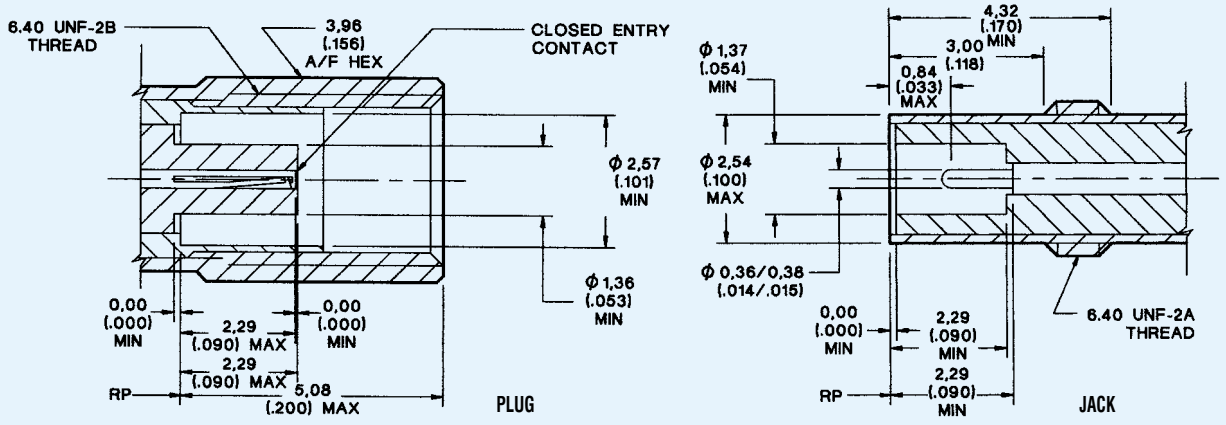
SSMC connectors are used where a positive mechanical engagement is required and where space permits the use of torque wrenches. SSMB connectors are quick disconnect versions of the SSMC and are used in applications where limited space prohibits the use of torque wrenches or when components or modules must be quickly changed to keep down time to a minimum.

Mating Interfaces

SSMB (Snap-on)



SSMC (Screw-on)



NOTES

1) Inside diameter of female contact to meet VSWR mating characteristics and connector durability when mated with a 0,36 - 0,38 (.014 - .015) diameter male contact.

2) Must meet the force to engage and disengage when mated with its mating part.

Specifications

ELECTRICAL	Impedance	50 Ω
	Frequency Range	SSMB = 0 to 4.0 GHz. SSMC = 0 to 12.4 GHz
	Voltage Rating	At Sea Level = 250 Vrms. At 21 km (70k feet) = 60 Vrms
	Insulation Resistance	1000 MΩ minimum
	Contact Resistance	Center contact = 4.0 mΩ maximum initial. 6.0 mΩ maximum after environment Outer Contact = 1.0 mΩ maximum initial. 1.5 mΩ maximum after environment Braid to Body = 1.0 mΩ maximum
	Contact Current Rating	1.0 A dc maximum
	Insertion Loss	0.30 dB maximum @ 1.5 GHz
	RF Leakage	SSMB = −40 dB minimum @ 2 - 3 GHz SSMC = −50 dB minimum @ 2 - 3 GHz
	Voltage Standing Wave Ratio (VSWR) To 12.4 GHz or 80% of upper cut-off frequency of the cable, whichever is lower. Applicable to 50Ω cables only. (F = GHz)	Mating Engagement

	SSMB		SSMC	
Cable	Straight	Rt. Angle	Straight	Rt. Angle
RG178/U, 196/U	1.25 + .02F	1.25 + .03F	1.20 + .02F	1.20 + .03F
RG188/U, 316/U	1.30 + .02F	1.30 + .03F	1.25 + .03F	1.30 + .02F

MECHANICAL	Engagement Forces	SSMB: Initial = 26.7 N (6 lbs.) max. engagement and 8.9 N (2 lbs.) minimum disengagement. After 500 matings = 26.7 N (60 lbs.) max. engagement and 4.4 N (1 lb.) min. disengagement. SSMC: 0.11 Nm (16 in. oz.) torque max.
	Mating Torque	SSMB: N/A. SSMC: 0.2 Nm to 0.23 Nm (28-32 in. oz.)
	Locknut Torque	0.28 Nm to 0.35 Nm (40-50 in. oz.)
	Coupling Nut Retention	SSMB: N/A. SSMC: 111 N (25 lbs.) minimum
	Materials	Body, Body Components: Brass, half hard. Male and Female Contacts: Beryllium copper. Insulators: PTFE. Lockwashers: Phosphor bronze. Crimp Ferrule: Annealed copper alloy.
	Finish/Plating	Center Contacts: Gold Plated Other Metal Parts: Gold or nickel plated 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. SSMB, test condition B (15 G's). SSMC, test condition D (20 G's)
	Shock	MIL-STD-202, Method 213. SSMB: test condition B, 75 G's @ 6 milliseconds, 1/2 sine. SSMC: 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.
GENERAL	Connector Durability	500 matings minimum
	Contact Captivation	8.9 N (2.0 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 SSMB/SSMC Connectors.

...220 gold body
...910 nickel body

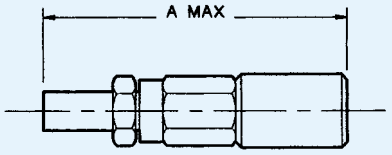
Plugs, Jacks and Receptacles

Straight Plug

Part Number	Cable Numbers	A
051-424-3188220	RG174/U, RG316/U	20,01 (.790)
A51-424-3196220	RG178/U, RG196/U	19,33 (.761)
A51-424-3875220	RD316	20,01 (.790)

Assembly Instructions

051-424-3188220	AI-663 (Page 114)
A51-424-3196220	AI-128 (Page 114)
A51-424-3875220	AI-663 (Page 114)

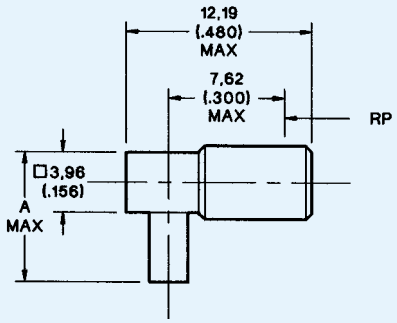


Right Angle Plug

Part Number	Cable Numbers	A
A51-428-3188220	RG174/U, RG316/U	9,55 (.376)
A51-428-3196220	RG178/U, RG196/U	9,55 (.376)
A51-428-3875220	RD316	10,16 (.400)

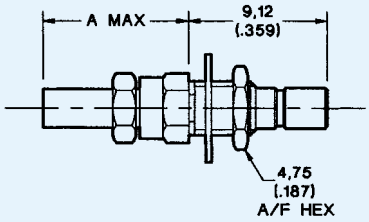
Assembly Instructions

A51-428-3188220	AI-129 (Page 115)
A51-428-3196220	AI-696 (Page 115)
A51-428-3875220	AI- 286 (Page 115)



Bulkhead Jack

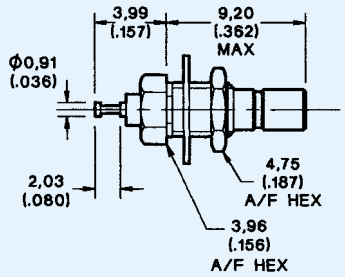
Part Number	Cable Numbers	A
A51-427-3188220	RG174/U, RG316/U	9,93 (.391)
A51-427-3196220	RG178/U, RG196/U	10,41 (.410)



Mounting Plan U (Page 109). Assembly Instruction AI-128 (Page 114)

Bulkhead Receptacle - Rear Mount

Part Number
051-443-0000220

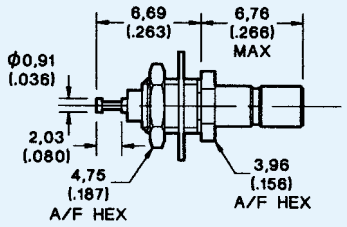


Mounting Plan U (Page 109)

Bulkhead and Printed Circuit Receptacles

Bulkhead Receptacle - Front Mount

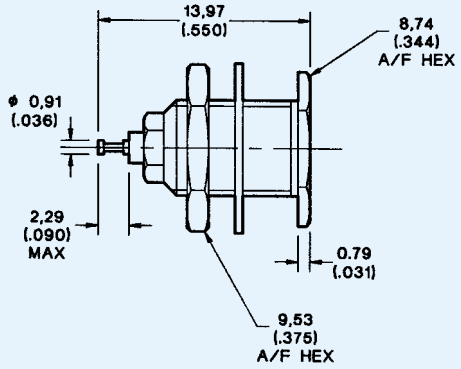
Part Number
051-445-0000220



Mounting Plan U (Page 109)

Bulkhead Receptacle – Recessed

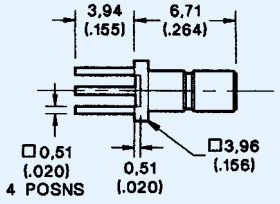
Part Number
051-449-0000220



Mounting Plan M (Page 108)

Printed Circuit Receptacle – Straight Jack

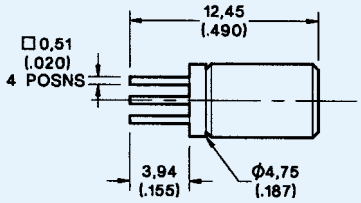
Part Number
A51-451-0000220



Mounting Plan C (Page 108)

Printed Circuit Receptacle – Straight Plug

Part Number
051-452-0000220

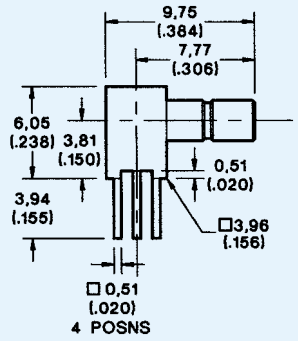


Mounting Plan C (Page 108)

Printed Circuit Receptacle

Printed Circuit Receptacle
– Right Angle Jack

Part Number
A51-453-0000220



Mounting Plan C (Page 108)

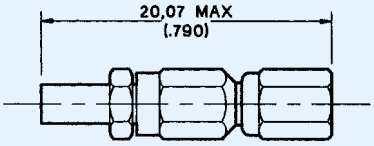
Plugs and Receptacles

Straight Plug

Part Number	Cable Numbers
050-424-3188220	RG174/U, RG316/U
050-424-3196220	RG178/U, RG196/U
050-424-3875220	RD316

Assembly Instructions

050-424-3188220	AI 663 (Page 114)
050-424-3196220	AI 128 (Page 114)
050-424-3875220	AI 663 (Page 114)

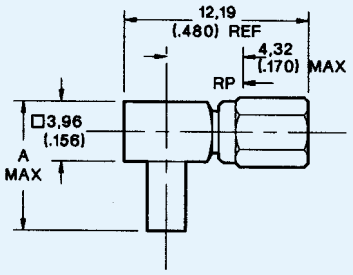


Right Angle Plug

Part Number	Cable Numbers	A
A50-428-3188220	RG174/U, RG316/U	10,16 (.400)
A50-428-3196220	RG178/U, RG196/U	9,40 (.370)

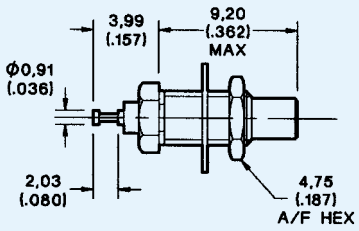
Assembly Instructions

A50-428-3188220	AI 286 (Page 115)
A50-428-3196220	AI 696 (Page 115)



Bulkhead Receptacle – Rear Mount

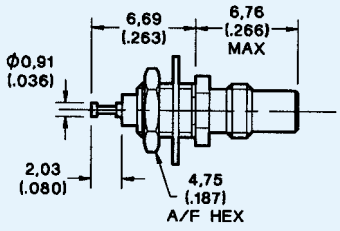
Part Number
050-443-0000220



Mounting Plan U (Page 109)

Bulkhead Receptacle – Front Mount

Part Number
050-445-0000220

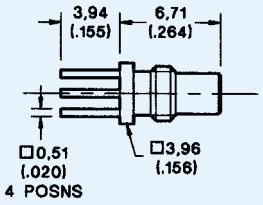


Mounting Plan U (Page 109)

Printed Circuit Receptacles

Printed Circuit Receptacle – Straight Jack

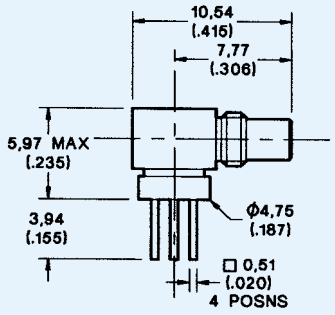
Part Number
050-451-0000220



Mounting Plan C (Page 108)

Printed Circuit Receptacle – Right Angle Jack

Part Number
050-453-0000220



Mounting Plan C (Page 108)

Introduction

The ITT Cannon range of SMZ connectors are extensively used in 75Ω communication systems and have become the recognised standard in telecommunications in many parts of the world.

Designed around the requirements of BS 9210 F0022 and draft specifications CECC 122 300, a wide range of connectors featuring some of the latest innovations are now available.

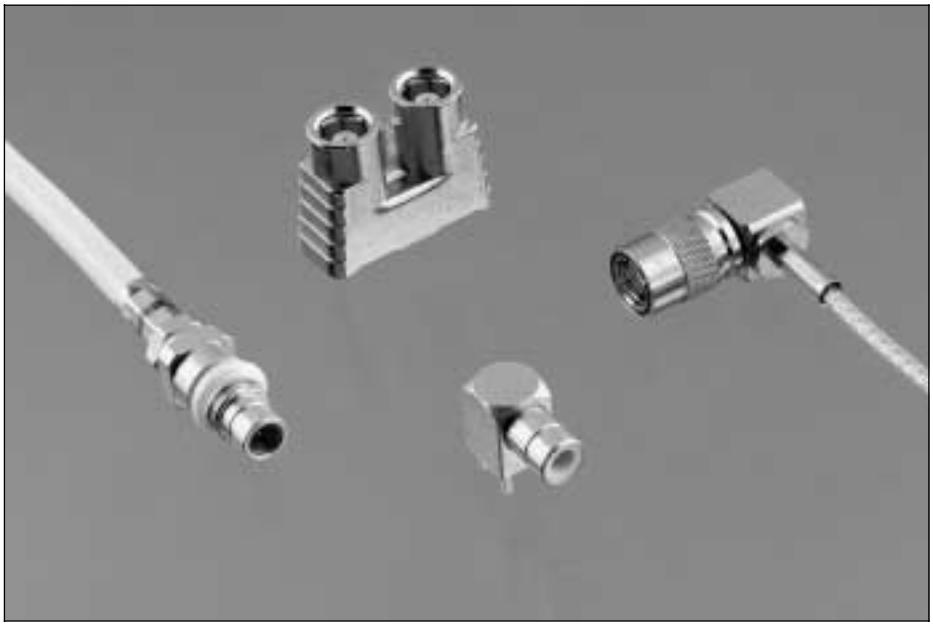
The **new** ITT Cannon developed QT™ (Quick Termination) technique for terminating coaxial cables to connectors is a feature of this range. The QT connector provides a high performance termination of the center conductor, without the use of crimp or solder tooling and reduces termination time significantly.

The range also offers the popular Posi-Lock™ locking connector together with recently developed PCB connectors that are a snap fit to the board, overcoming the need for jigging and possible re-work.

A full range of connectors for use with HDC and BT TEP 1E racking systems are available.

SMZ Connectors feature:

- Styles to suit most popular 75Ω coaxial cables
- Center contact termination using crimp, solder or the **new** QT™ termination method to reduce installed costs
- Performance in accordance with BS 9210 F0022 and CECC 122 300 (Draft at the time of this publication)
- Available for BT standard and HDC distribution frames
- Gold Plated contact surfaces
- Locking options prevent accidental disconnection, or ease of disconnection for testing
- ''Teplock'' mounting reduces the time needed for fitting to DDFs



Choice of Three Latching Styles

ITT Cannon 75Ω connectors employ three forms of latching mechanism. Standard types have a snap-on mechanism permitting easy push-on, pull-off. Posi-Lock plugs mate with all jacks but employ a sliding latch mechanism.

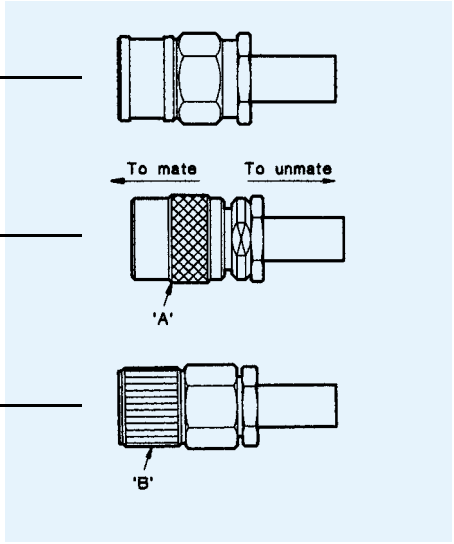
1) Snap-On
There are no external moving parts on either jack or plug. To connect push plug onto jack until retaining mechanism snaps together. To disconnect pull firmly on plug body.

2) Posi-Lock
The knurled, nickel plated sleeve 'A' locks the connector. This is released by pushing the sleeve forward when connecting and pulling the sleeve back when disconnecting.

3) Screw-Lock
To connect push plug onto jack until retaining mechanism snaps together. Then rotate the knurled, nickel plated nut 'B' clockwise to lock. Disconnection is the reverse of this sequence.

In addition to the three latching styles described, ITT Cannon also supplies a number of screw-on (75Ω SMC) connectors. Please contact ITT Cannon Technical Sales for details.

Screw-Lock jacks and plugs use the basic snap-on engagement with the addition of a finger operated locking nut. Both Posi-Lock and Screw-Lock provide security against accidental disconnection.



ITT Cannon

Dimensions are shown in mm (inch)
Dimensions subject to change

Specifications

ELECTRICAL	Impedance	75 Ω nominal
	Frequency Range	0 to 3.0 GHz
	Working Voltage (dc or ac peak)	At sea level, inner conductor to shell = 500 V
	Proof Voltage (dc or ac peak)	At sea level = 1500 V
	Insulation Resistance	5 GΩ minimum
	Contact Resistance*	Center contact: 5.0 mΩ maximum. Outer contact: 1.0 mΩ maximum
	Reflection Coefficient	Refer to CECC122300
	Current Rating	1.5 A dc maximum
MECHANICAL	Engagement Forces	All snap-on, Screw-Lock & Posi-Lock styles except U Links = 60 N (13.5 lbs.) maximum U Links (reduced force snap-on) = 40 N (9 lbs.) maximum
	Separation Forces	All snap-on, Screw-Lock & Posi-Lock styles except U Links = 60 N (13.5 lbs.) max, 8 N (1.8 lbs.) min. U Links (reduced force snap-on) = 40 N (9 lbs.) maximum, 20 N (4.5 lbs.) minimum
	Posi-Lock Latch withstand Pull	220 N (50 lbs.)
	Contact and Insulator Retention	21 N (4.7 lbs.)
	Materials	Body components: Copper or zinc alloy. Center contacts (male/female): Copper alloy. Insulators: PTFE or thermoset plastic. Crimp ferrules: Annealed copper alloy
	Finish/Plating	Center contacts: Gold. Outer contacts: Gold. Other metal parts: Nickel, tin/lead or zinc
ENVIRONMENTAL	Vibration Severity	(a) Frequency range: 10 Hz to 500 Hz. (b) Displacement**: 0,75 (.029). (c) Acceleration**: 98 m/s² (321 ft./s²). (d) Duration: 6 hours. ** Cross over at approx. 60 Hz
	Shock Severity	490 m/s² for 11 ms
	Impact Severity (free specimens only)	5 impacts at 1 m
	Climatic Catagory	40/100/21
	Bump	4000 total at 390 m/s²
	Free Fall (U Link only)	BS2011: Part 2.1 Ed. Procedure 2. Severity: 50 falls
GENERAL	Connector Durability	250 matings minimum

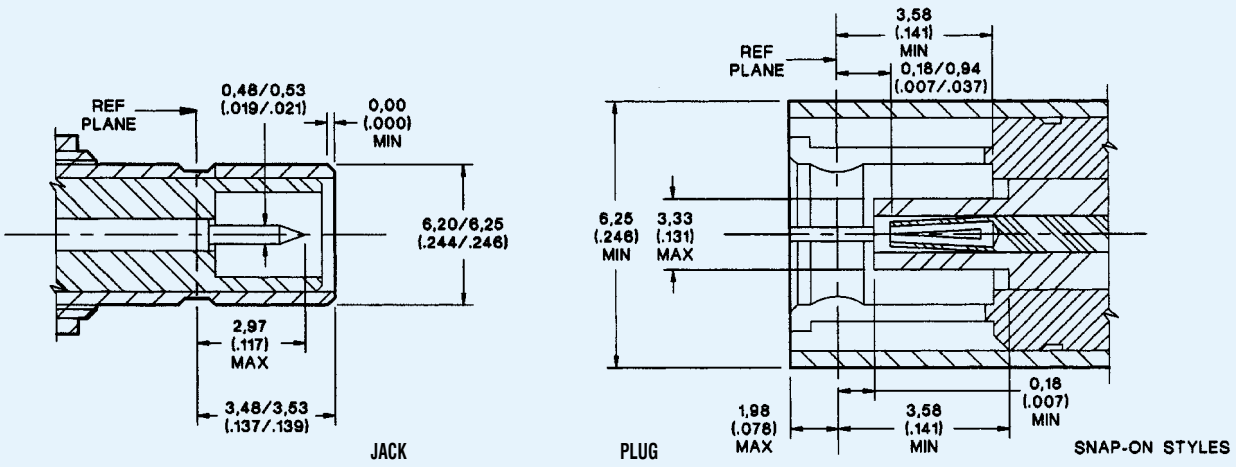
*Except U Link connectors. See BS9210 F0022 for details.

NOTES

[1] Values in this specification are typical for this range. Specific connectors may vary.

[2] ITT Cannon's 75 ohm coaxial connnectors are designed to meet or exceed the requirements of BS9210 F0022 where applicable. This specification will be superseded by CECC 122 300 and the details listed above are subject to change without notice to comply with changes in these specifications.

Mating Interfaces



Plugs

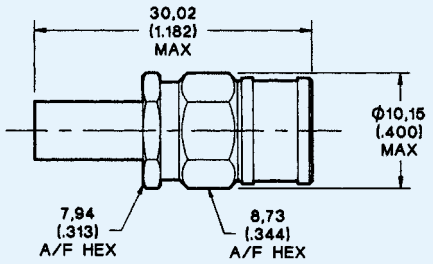
Straight Plug, Snap-On

With Crimp Contact

Part Number	BT Ref.	Cable Numbers
051-124-9569A90	SKT43/1E	BT2001
051-124-9579A90	SKT43/2E	BT2002
051-124-9589A90	SKT43/3E	BT2003
051-124-9649A90	SKT43/5E	BT3002, TZC75024
051-124-9599A90	–	RG179B/U, 187A/U

With Solder Contact

Part Number	BT Ref.	Cable Numbers
051-124-9269A90	SKT43/1A	BT2001
051-124-9279A90	SKT43/2A	BT2002
051-124-9289A90	SKT43/3A	BT2003
051-124-9349A90	–	BT3002, TZC75024
051-124-9129A90	–	RG59/U, 62/U, 140/U
051-124-9309A90	SKT43/4A	RG179B/U, 187A/U
051-124-0000A90	–	RG180/U, 195A/U
051-124-9399A90	–	RD179



Crimp Contact — Assembly Instruction BBAI-1119 (Page 133)
Solder Contact — Assembly Instruction BBAI-1040 (Page 131)

Straight Plug, Posi-Lock

With QT Contact (packed in trays of 25)

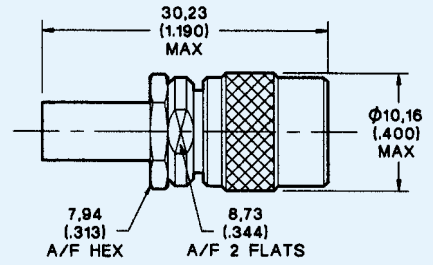
Part Number	Replaces BT Ref.	Cable Numbers
U51-124-953991A	S43/3F & 3B	BT2003
U51-124-963991A	S43/5F	BT3002, TZC75024

With Crimp Contact

Part Number	BT Ref.	Cable Numbers
051-124-9519910	SKT43/1F	BT2001
051-124-9529910	SKT43/2F	BT2002
051-124-9539910	SKT43/3F	BT2003
051-124-9639910	SKT43/5F	BT3002, TZC75024
051-124-9669S9A	–	RG59B/U
051-124-9549910	–	RG179B/U, 187A/U

With Solder Contact

Part Number	BT Ref.	Cable Numbers
051-124-9219910	SKT43/1B	BT2001
051-124-9229910	SKT43/2B	BT2002
051-124-9239910	SKT43/3B	BT2003
051-124-9339910	–	BT3002, TZC75024
051-124-9139A90	–	RG59/U, 62/U, 140/U
051-124-9249910	SKT43/4B	RG179B/U, 187A/U
051-124-9499910	–	RD179

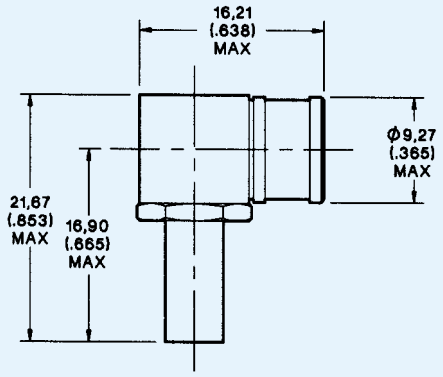


QT™ Contact — Assembly Instruction BBAI-1238 (Page 138)
Crimp Contact — Assembly Instruction BBAI-1119 (Page 133)
Solder Contact — Assembly Instruction BBAI-1040 (Page 131)

Plugs

Right Angle Plug, Snap-On

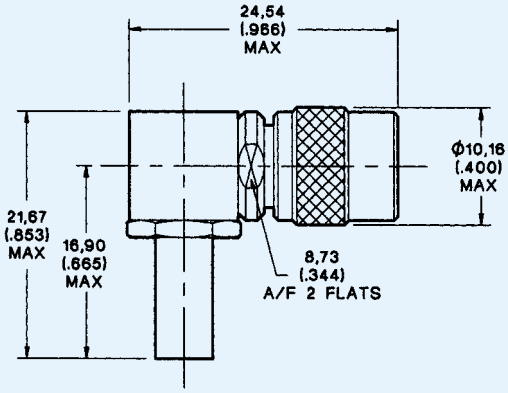
Part Number	BT Ref.	Cable Numbers
051-128-9369910	SKT43/1D	BT2001
051-128-9379910	SKT43/2D	BT2002
051-128-9389910	SKT43/3D	BT2003
051-128-9639910	SKT43/5D	BT3002, TZC75024
051-128-9299910	–	RG59/U, 62/U, 140/U
051-128-9409910	SKT43/4D	RG179B/U, 187A/U
051-128-9511910	–	RG180/U, 195A/U



Assembly Instruction BBAI-1041 (Page 132)

Right Angle Plug, Posi-Lock

Part Number	BT Ref.	Cable Numbers
051-128-9219910	SKT43/1C	BT2001
051-128-9229910	SKT43/2C	BT2002
051-128-9239910	SKT43/3C	BT2003
051-128-9339910	SKT43/5C	BT3002, TZC75024
051-128-9159910	–	RG59/U, 62/U, 140/U
051-128-9249910	SKT43/4C	RG179B/U, 187A/U



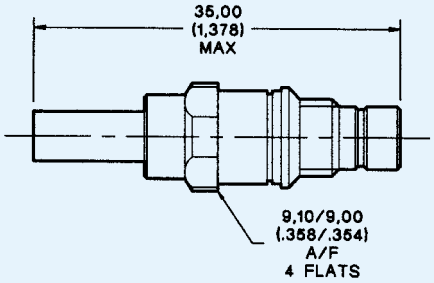
Assembly Instruction BBAI-1041 (Page 132)

Teplock DDF Cable Jacks

DDF JACKS MAY BE REMOVED FROM THE FRAME USING ITT CANNON TOOL T4653

With QT™ Contact (packed in trays of 25)

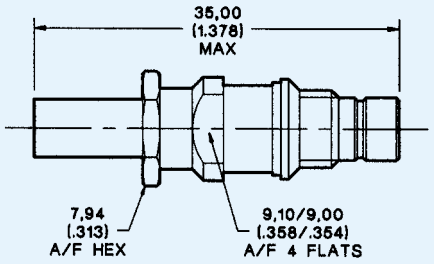
Part Number	Replaces BT Ref.	Cable Numbers
W51-127-9439A9A	P43/3GTI, 3G & 3C	BT2003
W51-127-9459A9A	P43/5GTI, 5G & 5C	BT3002, TZC75024



Assembly Instruction BBAI-1238 (Page 138)

With Crimp Contact

Part Number	BT Ref.	Cable Numbers
051-127-9419A90	P43/1GTI	BT2001
051-127-9429A90	P43/2GTI	BT2002
051-127-9439A90	P43/3GTI	BT2003
051-127-9459A90	P43/5GTI	BT3002, TZC75024
051-127-9449A90	–	RG179B/U, 187A/U

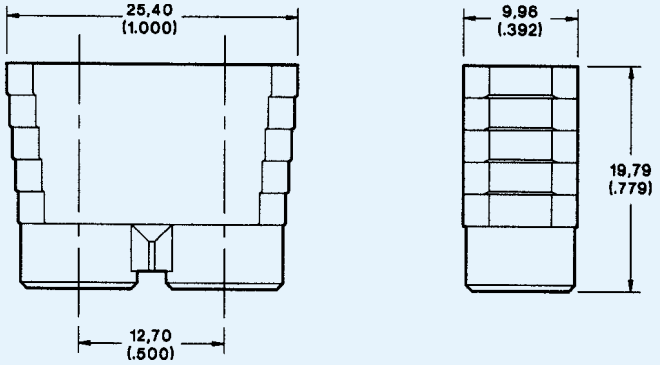


Assembly Instruction BBAI-1119 (Page 133)

Coaxial Links

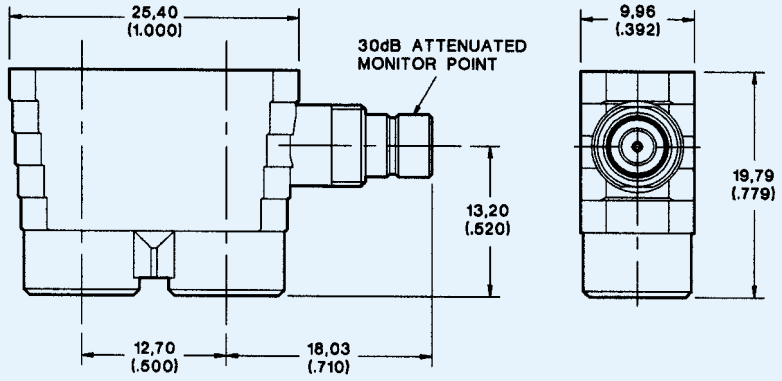
Link

Part Number	BT Ref.
055-181-9079AZ0	LINK 13A



Test Port Link 30 dB

Part Number	BT Ref.
055-181-9119AZ0	LINK 13B



THE CONNECTORS ON THIS PAGE ARE FOR USE WITH TEP1E FRAME DISTRIBUTION 6000 AND 6003 OR SIMILAR.

Bulkhead Jacks

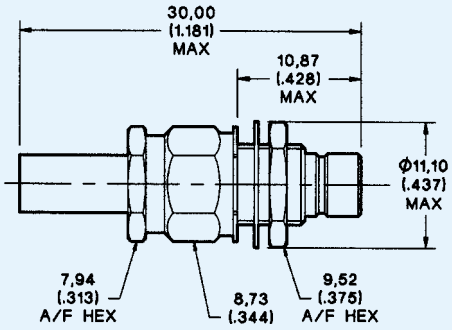
Straight Bulkhead Jack

With Crimp Contact

Part Number	BT Ref.	Cable Numbers
051-127-9519A90	PLUG43/1F	BT2001
051-127-9529A90	PLUG43/2F	BT2002
051-127-9539A90	PLUG43/3F	BT2003
051-127-9639A90	PLUG43/5F	BT3002, TZC75024
051-127-9589A90	–	RG179B/U, 187A/U

With Solder Contact

Part Number	BT Ref.	Cable Numbers
051-127-9219A90	PLUG43/1A	BT2001
051-127-9229A90	PLUG43/2A	BT2002
051-127-9239A90	PLUG43/3A	BT2003
051-127-9339A90	–	BT3002, TZC75024
051-127-9309A90	PLUG43/4A	RG179B/U, 187A/U
051-127-0000A90	–	RG180/U, 195A/U
051-127-9399A90	–	RD179

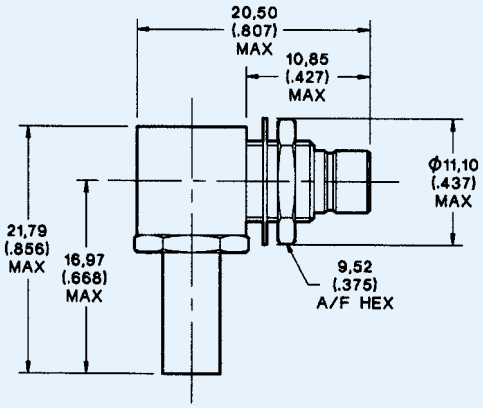


Crimp Contact — Assembly Instruction BBAI-1119 (Page 133)
Solder Contact — Assembly Instruction BBAI-1040 (Page 131)
Mounting Plan X (Page 109)
Maximum Panel Thickness 2,40 (.094)

Right Angle Bulkhead Jack

With Solder Contact

Part Number	BT Ref.	Cable Numbers
051-130-9219A90	PLUG43/1B	BT2001
051-130-9229A90	PLUG43/2B	BT2002
051-130-9239A90	PLUG43/3B	BT2003
051-130-9339A90	PLUG43/5B	BT3002, TZC75024
051-130-9309A90	PLUG43/4B	RG179B/U, 187A/U
051-130-9399A90	–	RD179

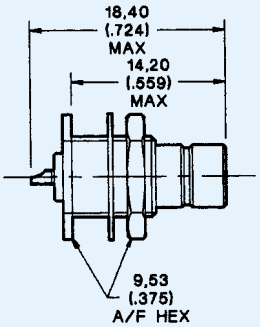


Assembly Instruction BBAI-1041 (Page 132)
Mounting Plan N (Page 108)
Maximum Panel Thickness 2,40 (0.94)

Bulkhead Jacks

Straight Bulkhead Jack, Solder Pot, Rear Mounted

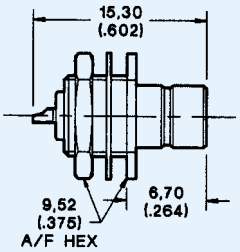
Part Number
051-143-9039220



Mounting Plan X (Page 109)
Maximum Panel Thickness 2,40 (.094)

Straight Bulkhead Jack, Solder Pot, Front Mounted

Part Number
051-145-0000A90

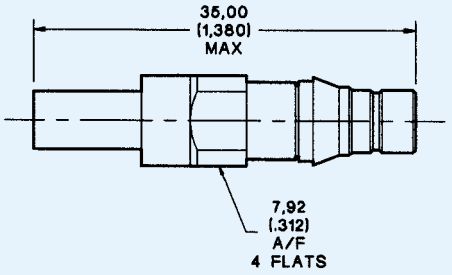


Mounting Plan X (Page 109)
Maximum Panel Thickness 2,40 (.094)

Teplock High Density DDF Cable Jacks

With QT™ Contact (packed in trays of 25)

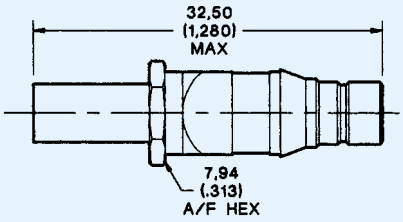
Part Number	Cable Numbers
W51-127-9929A9A	BT2003
W51-127-9909A9A	BT3002, TZC75024



Assembly Instruction BBAI-1238 (Page 138)

With Crimp Contact

Part Number	Cable Numbers
051-127-9929A90	BT2003
051-127-9909A90	BT3002, TZC75024
051-127-9919A90	RG179B/U, 187A/U

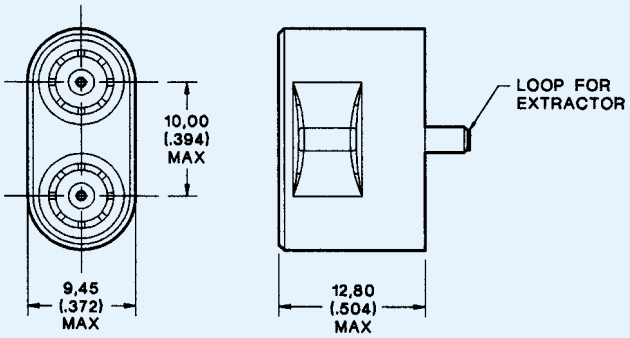


Assembly Instruction BBAI-1119 (Page 133)

High Density Coaxial Links

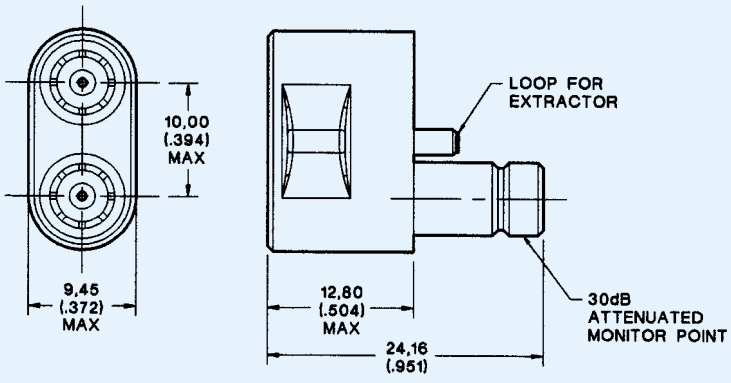
Link

Part Number	BT Ref.
055-181-9129AZ0	LINK 10A



Test Port Link 30 dB

Part Number	BT Ref.
055-181-9139AZ0	LINK 10B



The Combination Extractor T4825 may be used for the removal of the above jacks and links. (See Page 140)

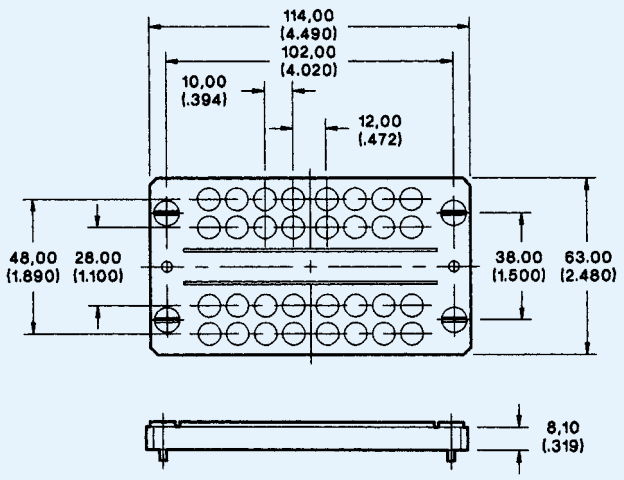
THE CONNECTORS ON THIS PAGE ARE SUITABLE FOR USE WITH MOUNTING BLOCK A0023351 OR OTHER HDC (HIGH DENSITY) DISTRIBUTION FRAMES.

High Density Mounting Panel

Part Number
A0023351

Includes captive screws for simplified mounting.

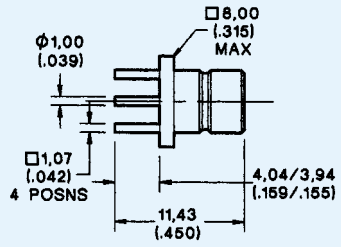
Holes are spaced in groups of 4 on a 10 mm (.393 in.) pitch. Adjacent groups are spaced to avoid accidental linking between groups.



Printed Circuit Board Connectors

Straight PCB Jack

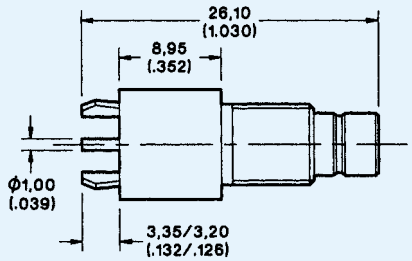
	Part Number	BT Ref.
Single Piece	051-151-9019A90	PLUG43/1D
Tray Packed (100)	051-151-9019A9A	PLUG43/1D



Mounting Plan A (Page 108)

Straight Bulkhead PCB Jack

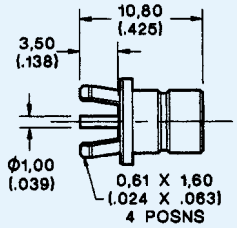
	Part Number
Tray Packed (100)	051-151-9079A9A
Panel Mounting Hardware Kit	A0023384



Mounting Plan A (Page 108)

Straight PCB Jack with Board Retaining Legs

	Part Number
Tray Packed (100)	051-151-9099A9A

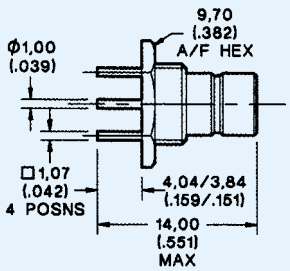


Mounting Plan A (Page 108)

Straight Screw-Lock PCB Jack

	Part Number
Single Piece	051-151-9029A90
Tray Packed (100)	051-151-9029A9A

Refer to page 49 for Screw-Lock plugs.

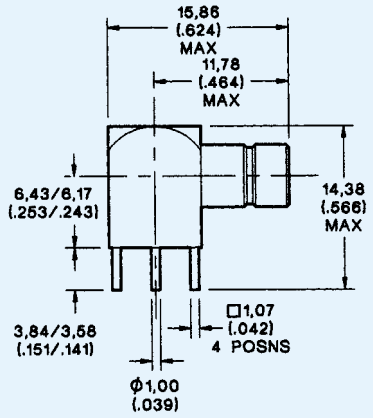


Mounting Plan A (Page 108)

Printed Circuit Board Connectors

Right Angle PCB Jack

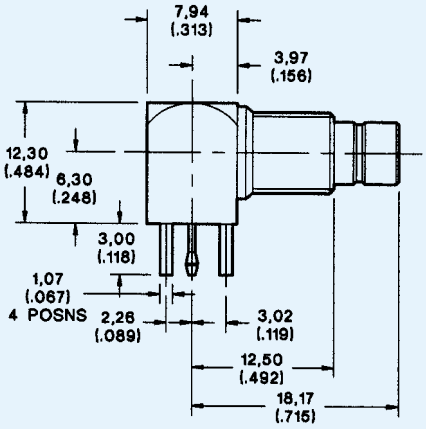
	Part Number	BT Ref.
Single Piece	051-153-9089A90	PLUG43/1E
Tray Packed (100)	051-153-9089A9A	PLUG43/1E



Mounting Plan A (Page 108)

Right Angle Bulkhead PCB Jack with Board Retaining Legs

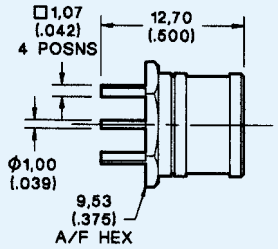
	Part Number
Tray Packed (100)	051-153-9119BAA
Panel Mounting Hardware Kit	B0023382



Mounting Plan A (Page 108)

Straight PCB Snap-On Plug

Part Number
051-152-0000220

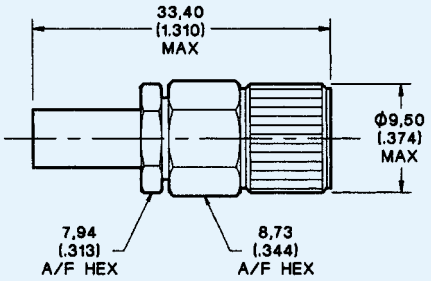


Mounting Plan A (Page 108)

Screw-Lock Series Connectors

Straight Screw-Lock Plug

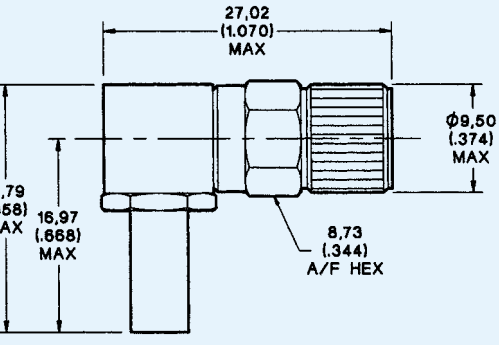
Part Number	Cable Numbers
055-124-9519910	BT2001
055-124-9529910	BT2002
055-124-9539910	BT2003
055-124-9639910	BT3002, TZC75024
055-124-9549910	RG179B/U, 187A/U



Assembly Instruction BBAI-1119 (Page 133)
[055-124-9549910 - Assembly Instruction BBAI-1040 (Page 131)]

Right Angle Screw-Lock Plug

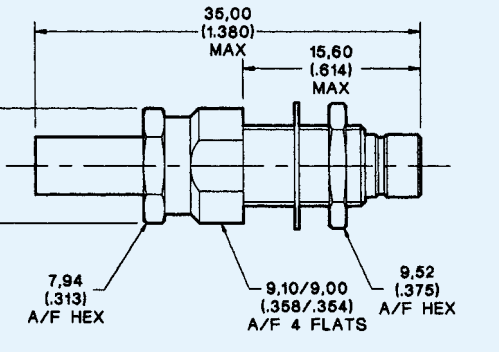
Part Number	Cable Numbers
055-128-9219910	BT2001
055-128-9229910	BT2002
055-128-9239910	BT2003
055-128-9339910	BT3002, TZC75024
055-128-9249910	RG179B/U, 187A/U



Assembly Instruction BBAI-1041 (Page 132)

Straight Screw-Lock Bulkhead Jack

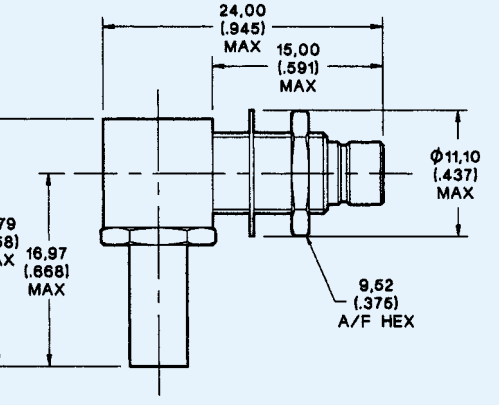
Part Number	Cable Numbers
055-127-9519A90	BT2001
055-127-9529A90	BT2002
055-127-9539A90	BT2003
055-127-9639A90	BT3002, TZC75024
055-127-9549A90	RG179B/U, 187A/U



Mounting Plan X (Page 109). Maximum Panel Thickness 5,00 (.197). Assembly Instruction BBAI-1119 (Page 133). [055-127-9549A90 - Assembly Instruction BBAI-1040 (Page 131)]

Right Angle Screw-Lock Bulkhead Jack

Part Number	Cable Numbers
055-130-9519A90	BT2001
055-130-9529A90	BT2002
055-130-9539A90	BT2003
055-130-9639A90	BT3002, TZC75024
055-130-9549A90	RG179B/U, 187A/U

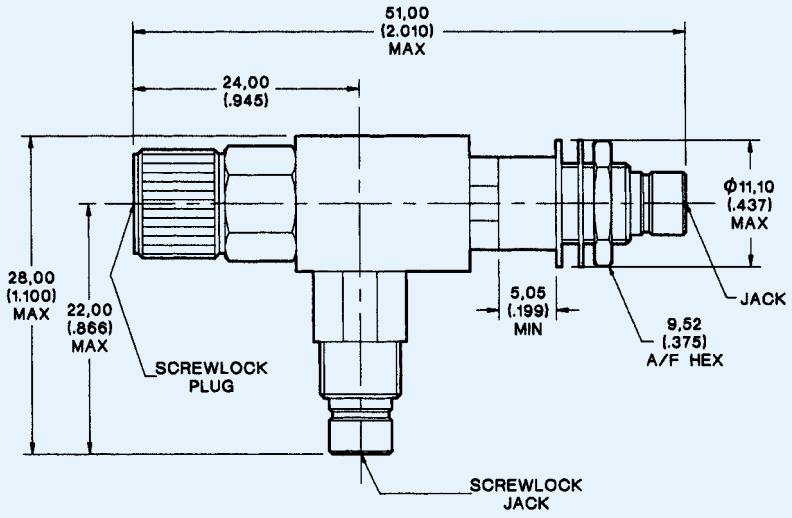


Mounting Plan X (Page 109). Max. Panel Thickness 5,00 (.197). Assembly Instruction BBAI-1041 (Page 132)

Adaptors

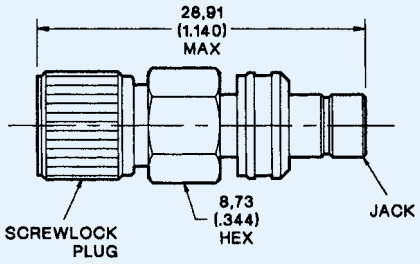
30 dB Test Port Adaptor

Part Number
055-185-9029C90



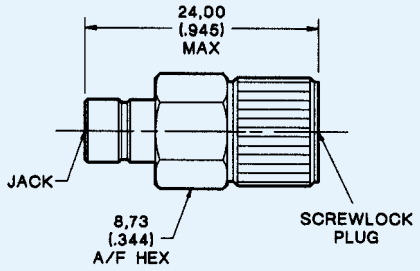
Jack to Screw-Lock Plug Filter Adaptor

Part Number
055-174-9019A90



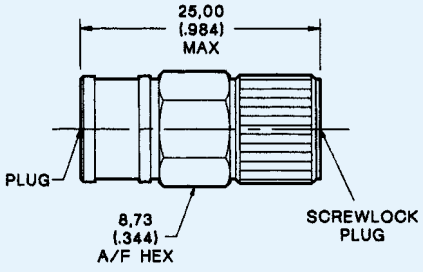
Jack to Screw-Lock Plug Adaptor

Part Number
051-174-9019220



Screw-Lock Plug to Snap-On Plug Adaptor

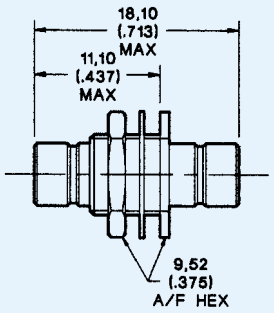
Part Number
051-173-9009220



Adaptors

Jack to Jack Bulkhead Adaptor

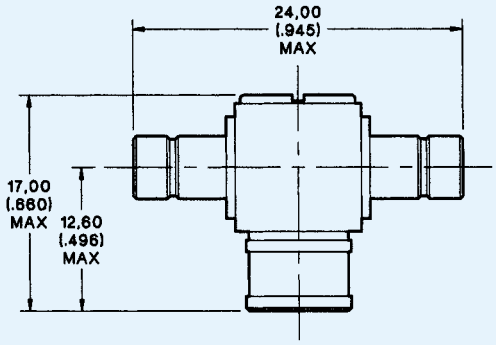
Part Number
051-175-0000220



Mounting Plan X (Page 109)
Maximum Panel Thickness 2,40 (.094)

Jack-Plug-Jack "T" Adaptor

Part Number
051-185-0000220



SMZ

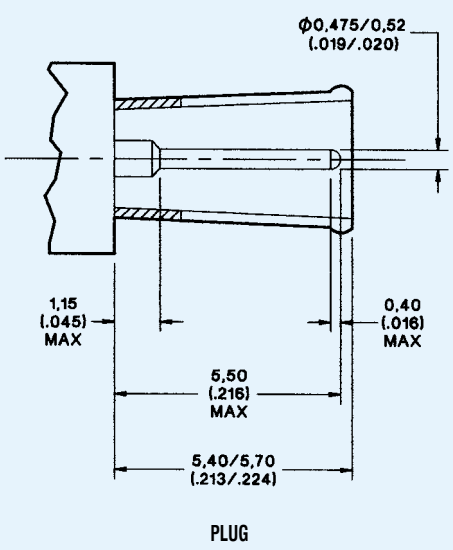
Introduction

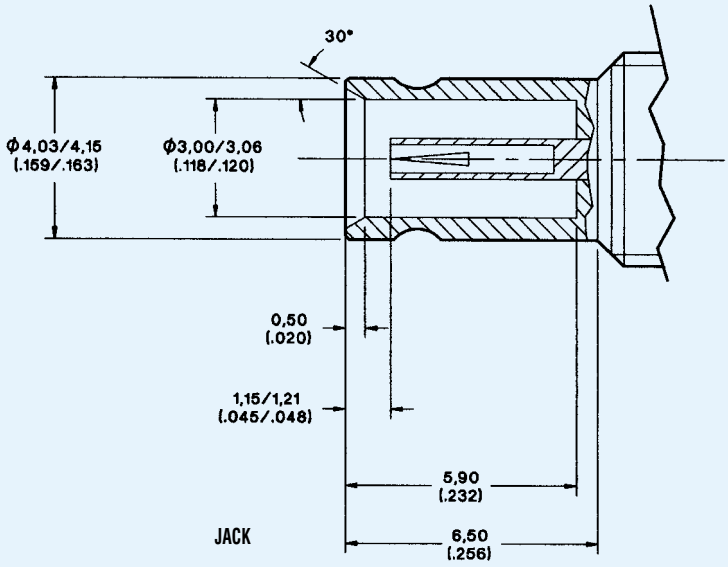
The ITT Cannon 1.0/2.3 Connectors are offered in both 50 ohm and 75 ohm series. These connectors are now widely used in telecommunication systems where, due to their smaller size, significant space saving can be achieved. Ideally suited to RF and high speed digital equipment, the connectors are designed to meet the requirements of CECC 22230 and DIN47247.

This range features the Push-Pull coupling mechanism to provide a secure latch that prevents accidental disconnection, whilst allowing ease of mating and unmating.

The range of parts shown in this publication includes plug and jack connectors for a variety of cables, together with PCB styles and U links. Other cable types and connector styles may be available on request.

Mating Interfaces





Specifications

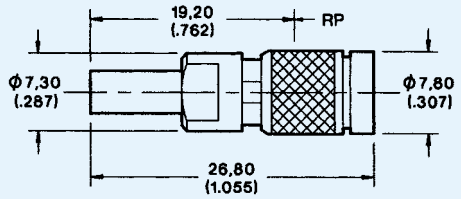
ELECTRICAL	Impedance	50 Ω / 75 Ω nominal		
	Frequency Range	With 50 Ω connector on 50 Ω cable = 0 - 10 GHz With 50 Ω connector on 75 Ω cable = 0 - 0.3 GHz With 75 Ω connector on 75 Ω cable = 0 - 2 GHz		
	Voltage Rating *	At Sea Level = 250 Vrms At 20 Km altitude = 65 Vrms		
	Insulation Resistance	1000 MΩ minimum		
	Contact Resistance	Inner contact (50 Ω) = 4 mΩ maximum Inner contact (75 Ω) = 6 mΩ typical maximum Outer contact (50 Ω – 75 Ω) = 2.5 mΩ maximum		
	Reflection Coefficient *	With 50 Ω connector on 50 Ω cable and	f = 1 GHz	= 0.05 maximum
			f = 1-4 GHz	= 0.07 maximum
			f = 4-10 GHz	= 0.15 maximum
		With 50 Ω connector on 75 Ω cable and	f = 100 MHz	= 0.04 maximum
			f = 100-200 MHz	= 0.07 maximum
			f = 200-300 MHz	= 0.1 maximum
		With 75 Ω connector on 75 Ω cable and	f = 2 GHz	= 0.1 maximum
MECHANICAL				
	Withdrawal force, inner female contact	0.2 N (0.04 lbs.) minimum		
	Withdrawal force, outer male contact	0.7 N (0.15 lbs.) minimum		
	Insertion force between jacks and plugs	10 N (2.24 lbs.) maximum		
	Withdrawal force between jacks and plugs	0.9 N (0.20 lbs.) minimum		
	Materials	Bodies and nuts: Brass. Inner male contact: Brass or beryllium copper. Inner and outer female contacts: Beryllium copper. Insulators: PTFE. Crimp ferrules: Copper alloy.		
	Finish/Plating	Contact surfaces: Gold over nickel. Bodies and crimp ferrules: Nickel or gold over nickel.		
ENVIRONMENTAL	Temperature Rating	−40° C to 85° C		
GENERAL	Connector Durability	500 matings minimum		
	Standards	CECC 22230, DIN 47297		

* Guideline value only - will depend on cable and connector type

50Ω Cable Plugs

Straight Crimp Plug
Push-Pull Coupling

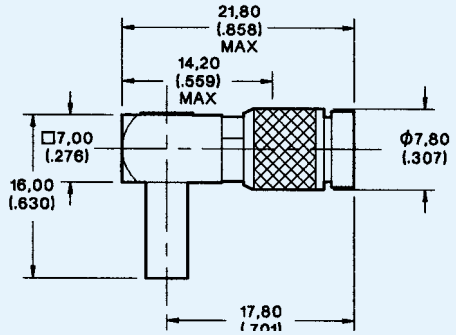
Part Number	Cable Numbers
F55-B24-3060A90	RG188A/U, 316/U



Assembly Instruction BBAI-1249 (Apply ITT Cannon Sales Dept.)

Right Angle Crimp Plug
Push-Pull Coupling

Part Number	Cable Numbers
F55-B28-3060A90	RG188A/U, 316/U

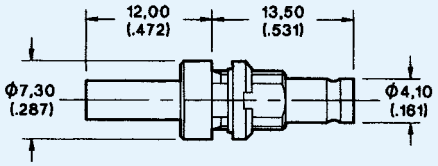


Assembly Instruction BBAI-1251 (Apply ITT Cannon Sales Dept.)

50Ω Cable Jacks

Straight Crimp Bulkhead Jack
All Couplings

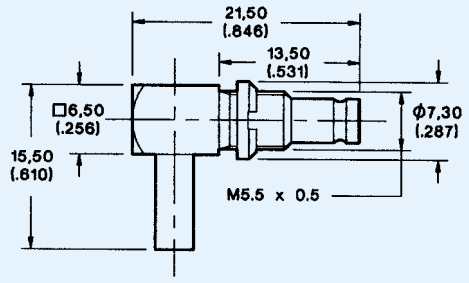
Part Number	Cable Numbers
F50-B27-3060A90	RG188A/U, 316/U
F50-B27-3058A90	RG58C/U



Mounting Plan K (Page 108). Maximum Panel Thickness 1,50 (.059)
Assembly Instruction BBAI-1250 (Apply ITT Cannon Sales Dept.)

Right Angle Crimp Bulkhead Jack
All Couplings

Part Number	Cable Numbers
F50-B30-3060A90	RG188A/U, 316/U



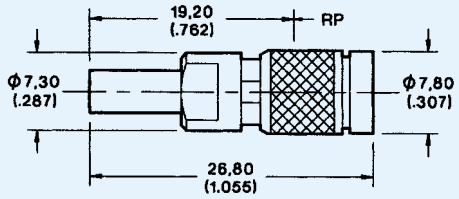
Mounting Plan J (Page 108). Maximum Panel Thickness 2,00 (.078)
Assembly Instruction BBAI-1252 (Apply ITT Cannon Sales Dept.)

OTHER CABLE TYPES AVAILABLE ON REQUEST

75Ω Cable Plugs

Straight Crimp Plug
Push-Pull Coupling

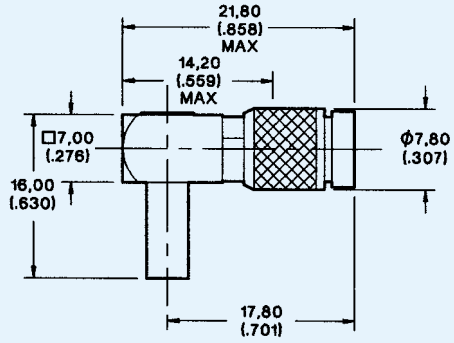
Part Number	Cable Numbers
F55-F24-3079A90	RG179B/U, 187/U
F55-F24-3035A90	BT3002, TZC75024



Assembly Instruction BBAI-1249 (Apply ITT Cannon Sales Dept.)

Right Angle Crimp Plug
Push-Pull Coupling

Part Number	Cable Numbers
F55-F28-3035A90	BT3002, TZC75024

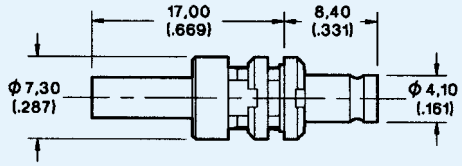


Assembly Instruction BBAI-1251 (Apply ITT Cannon Sales Dept.)

75Ω Cable Jacks

Straight Crimp Jack
Push-Pull and Snap Couplings

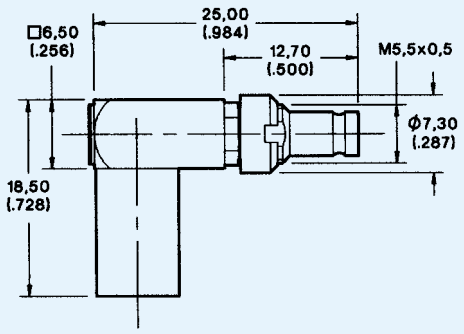
Part Number	Cable Numbers
F51-F27-3079A90	RG179B/U, 187/U
F51-F27-3035A90	BT3002, TZC75024



Mounting Plan K (Page 108). Maximum Panel Thickness 1,50 (.059)
Assembly Instruction BBAI-1250 (Apply ITT Cannon Sales Dept.)

Right Angle Crimp Jack
Push-Pull and Snap Couplings

Part Number	Cable Number
F51-F30-3059A90	RG59B/U

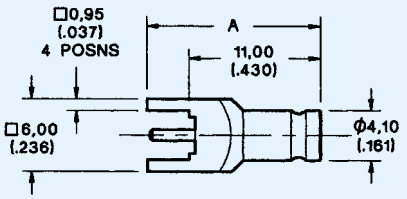


Mounting Plan J (Page 108). Maximum Panel Thickness 1,50 (.059)
Assembly Instruction BBAI-1252 (Apply ITT Cannon Sales Dept.)

50Ω Printed Circuit Board Connectors

Straight Jack, 0,95 (.037) Square Legs
Push-Pull and Snap Couplings

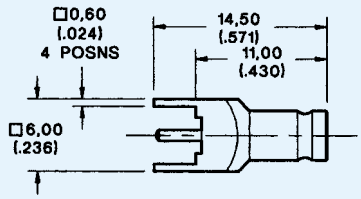
Part Number	A
F51-B51-9001A9A	14,50 (.570)
F51-B51-9002A9A	15,50 (.610)



Mounting Plan F (Page 108)

Straight Jack, 0,60 (.024) Square Legs
Push-Pull and Snap Couplings

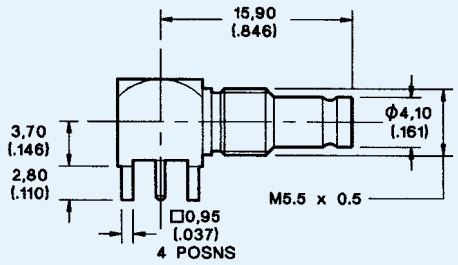
Part Number
F51-B51-9005A9A



Mounting Plan G (Page 108)

Right Angle Jack, 0,95 (.037) Square Legs
All Couplings

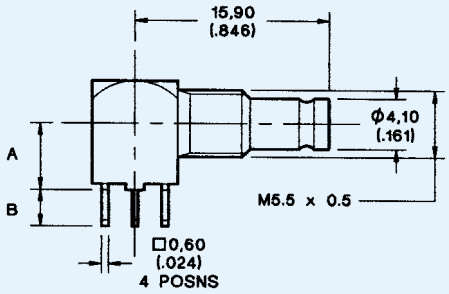
Part Number
F50-B53-9001A9A



Mounting Plan F (Page 108)

Right Angle Jack, 0,60 (.024) Square Legs
All Couplings

Part Number	A	B
F50-B53-9002A9A	3,70 (.145)	3,30 (.130)
F50-B53-9003A9A	5,00 (.196)	3,30 (.130)

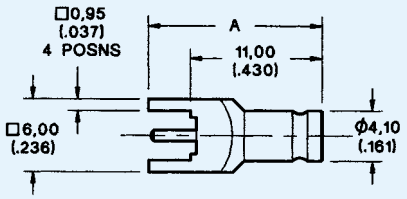


Mounting Plan H (Page 108)

75Ω Printed Circuit Board Connectors

Straight Jack
Push-Pull and Snap Couplings

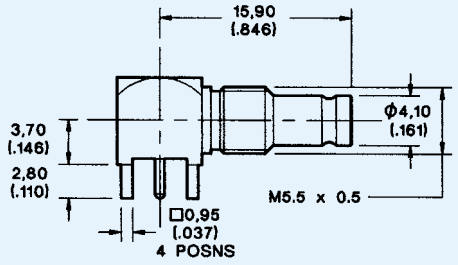
Part Number	A
F50-F51-9001A9A	14,50 (.570)



Mounting Plan F (Page 108)

Right Angle Jack
All Couplings

Part Number
F50-F53-9001A9A



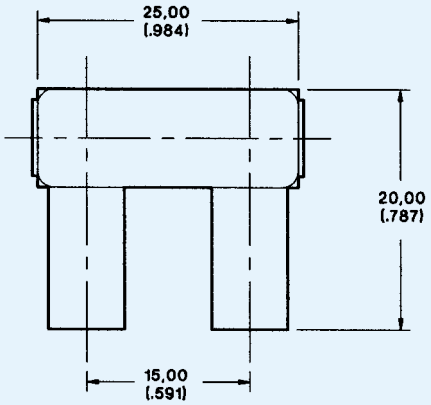
Mounting Plan F (Page 108)

1.0/2.3

Miscellaneous Connectors

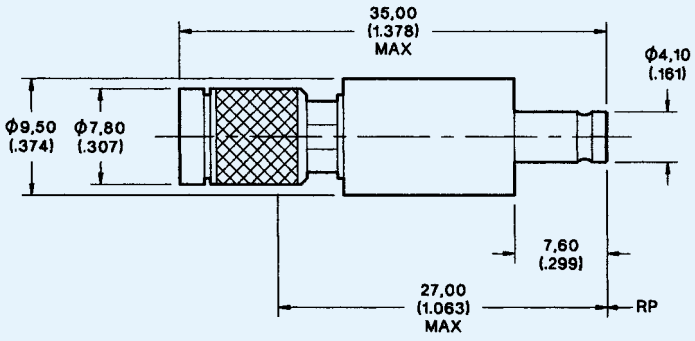
Coaxial Link, Plug-to-Plug
Snap Coupling

Part Number
F51-B81-9001A90



75Ω Decoupled Adaptor
Push-Pull Plug to Push-Pull and Snap Jack

Part Number
F55-F74-9001A90

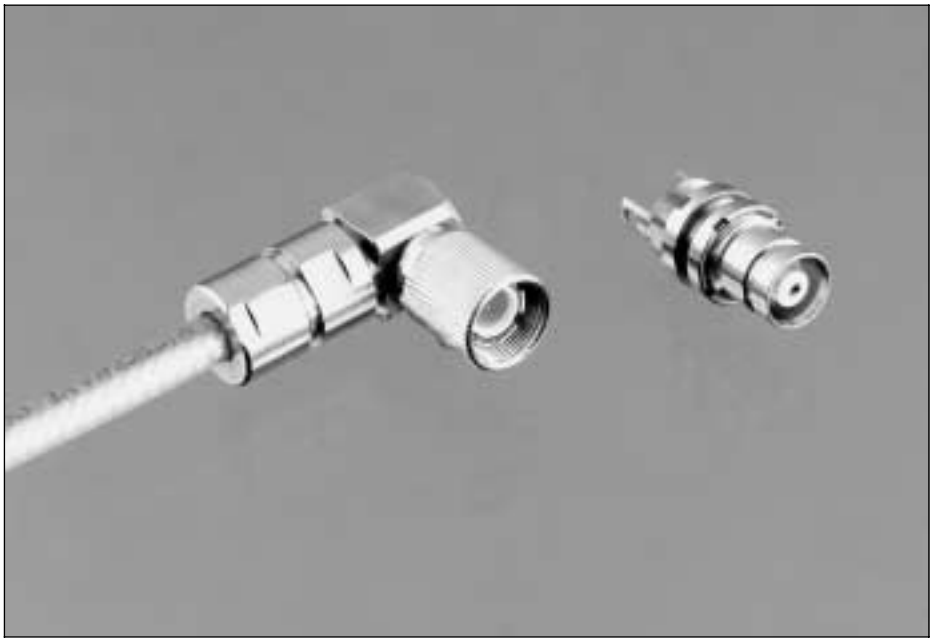


Introduction

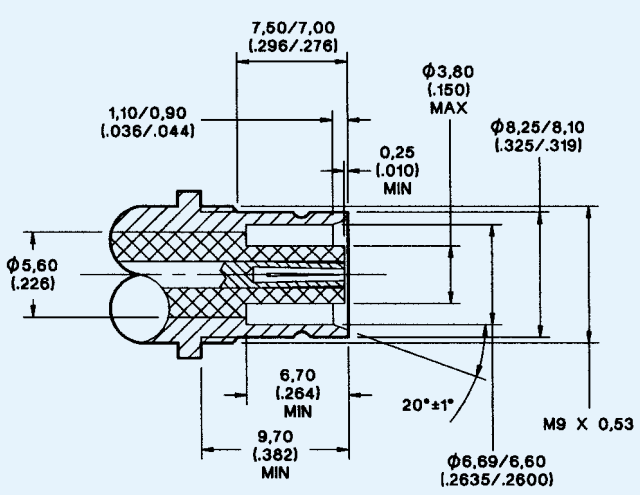
The ITT Cannon range of 1.6/5.6 Connectors are suitable for use in 75 ohm communication systems. These connectors have become the recognised standard in telecommunication systems in many parts of the world.

Designed to meet the requirements of DIN 47295, CECC 22240 and IEC 169-13, these connectors feature screw couplings to ensure mating integrity and snap coupling for ease of connection and disconnection (New Push-Pull coupling will be introduced in 1996).

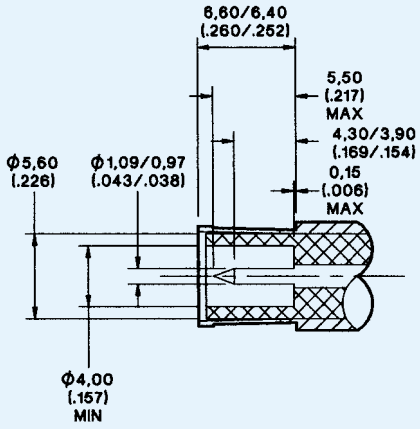
The range of parts shown in this publication includes plug and jack connectors for a variety of cables, together with PCB styles and U links. Other cable types and connector styles may be available on request.



Mating Interfaces



JACK



PLUG

ITT Cannon

Dimensions are shown in mm (inch)
Dimensions subject to change

Specifications

ELECTRICAL	Impedance	75 Ω nominal
	Frequency Range	0 - 1 GHz
	Voltage Rating *	At Sea Level = 330 Vrms
	Insulation Resistance	10 GΩ minimum
	Contact Resistance	Inner contact = 4 mΩ maximum Outer contact = 2 mΩ maximum
	Reflection Coefficient *	With f = 0.1 GHz = 0.02 maximum With f = 0.1 – 0.5 GHz = 0.04 maximum With f = 0.5 – 1.0 GHz = 0.10 maximum
MECHANICAL		
	Withdrawal force inner female contact	0.5 N (0.11 lbs.) minimum
	Withdrawal force inner male contact	1.7 N (0.38 lbs.) minimum
	Insertion force between jacks and plugs	Screw types: 12 N (2.7 lbs.) maximum. Push-pull type: 20 N (4.5 lbs.) maximum
	Withdrawal force between jacks and plugs	Screw types: 22 N (4.9 lbs.) minimum. Push-pull type: 20 N (4.5 lbs.) maximum
	Materials	Bodies and nuts: Brass. Inner male contact: Brass. Inner female contact and outer male contact: Beryllium copper. Insulators: PTFE. Crimp ferrules: Annealed copper alloy.
	Finish/Plating	Contact surfaces: Gold over nickel. Female bodies: Gold over nickel. Male bodies: Nickel or silver. Nuts and crimp ferrules: Nickel
ENVIRONMENTAL	Temperature Rating	−40° C to 85° C
GENERAL	Connector Durability	500 matings minimum
	Standards	CECC 22240, DIN 47295, IEC 169-13

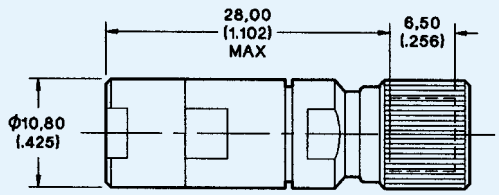
* Guideline value only– will depend on cable and connector type

Cable Plugs

OTHER CABLE TYPES AVAILABLE ON REQUEST

Straight Clamp Plug Screw Coupling

Part Number	Cable Numbers
F50-A07-3002A90	2YCCY 0.4/2.5, 2YC(MS)CY 0.4/2.5 ST121
F50-A07-3003A90	2YCY 0.7/4.4 RG59B/U, ST120, ST214



Assembly Instruction BBAI-1244 (Apply ITT Cannon Sales Dept.)

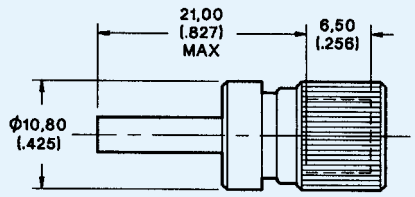
Straight Crimp Plug Screw Coupling

Part Number	Cable Numbers
F50-A24-3002A90	2YCCY 0.4/2.5
F50-A24-3003A90	2YCY 0.7/4.4
F50-A24-3033A90	BT2003
F50-A24-3035A90	BT3002, TZC75024

Assembly Instructions

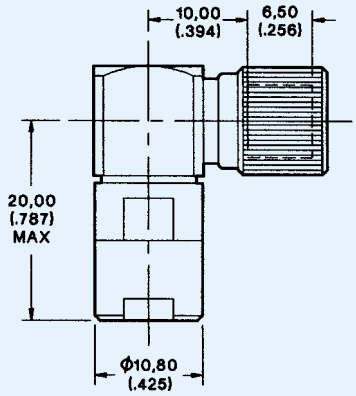
F50-A24-3002A90	BBAI-1245
F50-A24-3003A90	BBAI-1246
F50-A24-3033A90	BBAI-1245
F50-A24-3035A90	BBAI-1246

(Apply ITT Cannon Sales Dept.)



Right Angle Clamp Plug Screw Coupling

Part Number	Cable Numbers
F50-A11-3002A90	2YCCY 0.4/2.5, 2YC(MS)CY 0.4/2.5 ST121
F50-A11-3003A90	2YCY 0.7/4.4 RG59B/U, ST120, ST214



Assembly Instruction BBAI-1231 (Apply ITT Cannon Sales Dept.)

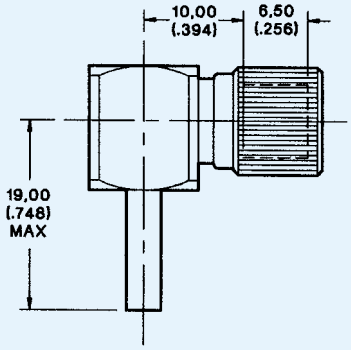
Right Angle Crimp Plug Screw Coupling

Part Number	Cable Numbers
F50-A28-3002A90	2YCCY 0.4/2.5
F50-A28-3003A90	2YCY 0.7/4.4
F50-A28-3033A90	BT2003
F50-A28-3035A90	BT3002, TZC75024

Assembly Instructions

F50-A28-3002A90	BBAI-1247
F50-A28-3003A90	BBAI-1248
F50-A28-3033A90	BBAI-1247
F50-A28-3035A90	BBAI-1248

(Apply ITT Cannon Sales Dept.)



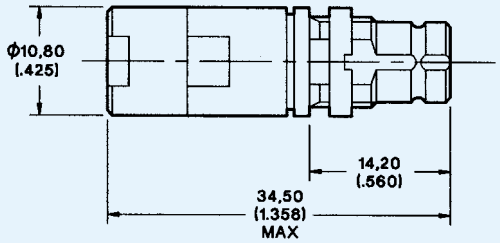
Dimensions are shown in mm (inch)
Dimensions subject to change

Cable Jacks

OTHER CABLE TYPES AVAILABLE ON REQUEST

Straight Bulkhead Clamp Jack
All Couplings

Part Number	Cable Numbers
F50-A10-3002A90	2YCCY 0.4/2.5, 2YC(MS)CY 0.4/2.5 ST121
F50-A10-3003A90	2YCY 0.7/4.4 RG59B/U, ST120, ST214



Mounting Plan BB (Page 109). Maximum Panel Thickness 2,00 (.078). Assembly Instruction BBAI-1244*

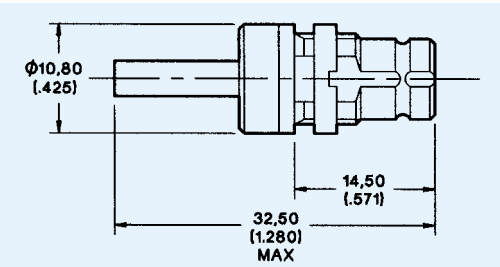
Straight Bulkhead Crimp Jack
All Couplings

Part Number	Cable Numbers
F50-A27-3002A90	2YCCY 0.4/2.5
F50-A27-3003A90	2YCY 0.7/4.4
F50-A27-3033A90	BT2003
F50-A27-3035A90	BT3002, TZC75024

Assembly Instructions

F50-A27-3002A90	BBAI-1245
F50-A27-3003A90	BBAI-1246
F50-A27-3033A90	BBAI-1245
F50-A27-3035A90	BBAI-1246

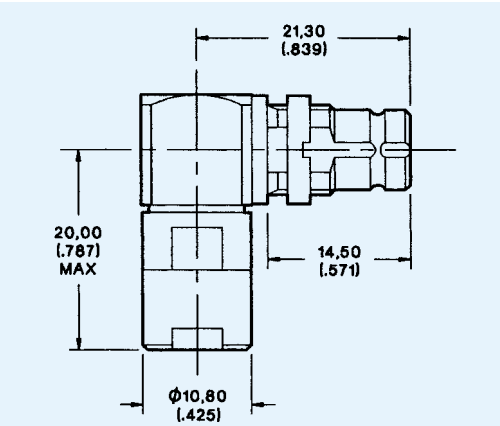
(Apply ITT Cannon Sales Dept.)



Mounting Plan BB (Page 109). Maximum Panel Thickness 2,00 (.078)

Right Angle Bulkhead Clamp Jack
All Couplings

Part Number	Cable Numbers
F50-A12-3002A90	2YCCY 0.4/2.5, 2YC(MS)CY 0.4/2.5 ST121
F50-A12-3003A90	2YCY 0.7/4.4 RG59B/U, ST120, ST214
F50-A12-3033A90	BT2003
F50-A12-3035A90	BT3002, TZC75024
F50-A12-3045A90	2.5C-2V



Mounting Plan BB (Page 109). Maximum Panel Thickness 2,00 (.078). Assembly Instruction BBAI-1231*

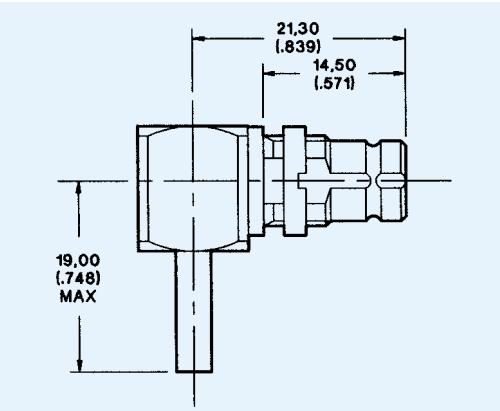
Right Angle Bulkhead Crimp Jack
All Couplings

Part Number	Cable Numbers
F50-A30-3002A90	2YCCY 0.4/2.5
F50-A30-3003A90	2YCY 0.7/4.4
F50-A30-3033A90	BT2003
F50-A30-3035A90	BT3002, TZC75024

Assembly Instructions

F50-A30-3002A90	BBAI-1247
F50-A30-3003A90	BBAI-1248
F50-A30-3033A90	BBAI-1247
F50-A30-3035A90	BBAI-1248

(Apply ITT Cannon Sales Dept.)



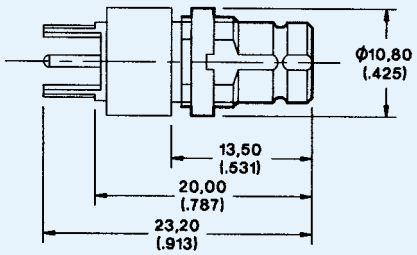
Mounting Plan BB (Page 109). Maximum Panel Thickness 2,00 (.078)

* Apply ITT Cannon Sales Department

Printed Circuit Board Connectors

Straight Panel Jack
All Couplings

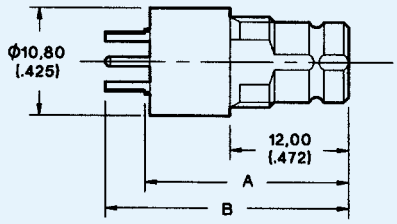
Part Number
F50-A51-9001A9A



Mounting Plan P & E (Page 108). Maximum Panel Thickness 1,50 (.059)

Straight Jack
All Couplings

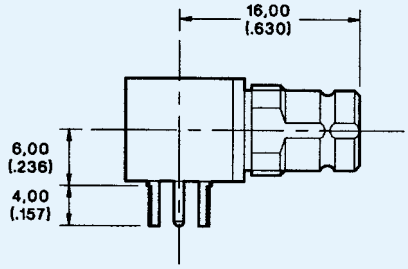
Part Number	A	B
F50-A51-9002A9A	20,80 (.818)	25,00 (.984)
F50-A51-9003A9A	21,50 (.846)	28,50 (1.122)



Mounting Plan B (Page 108)

Right Angle Jack
All Couplings

Part Number
F50-A53-9001A9A



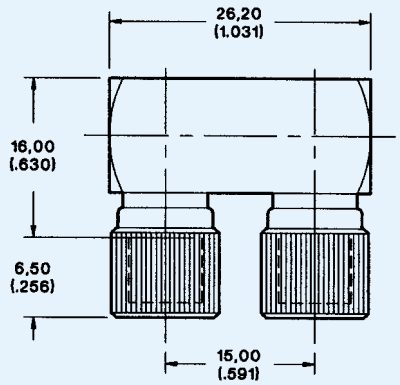
Mounting Plan B (Page 108)

Coaxial Links

OTHER SIZES AVAILABLE ON REQUEST

U Link
Screw Coupling

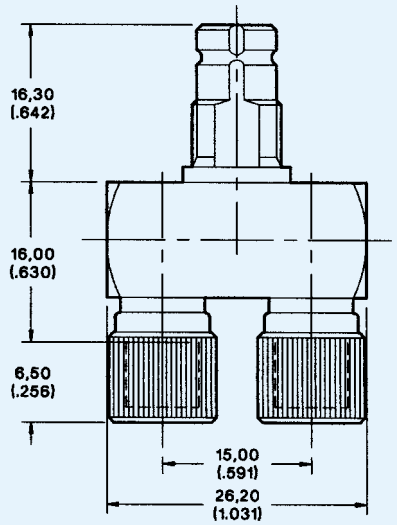
Part Number
F50-A81-9001A90



1.6/5.6

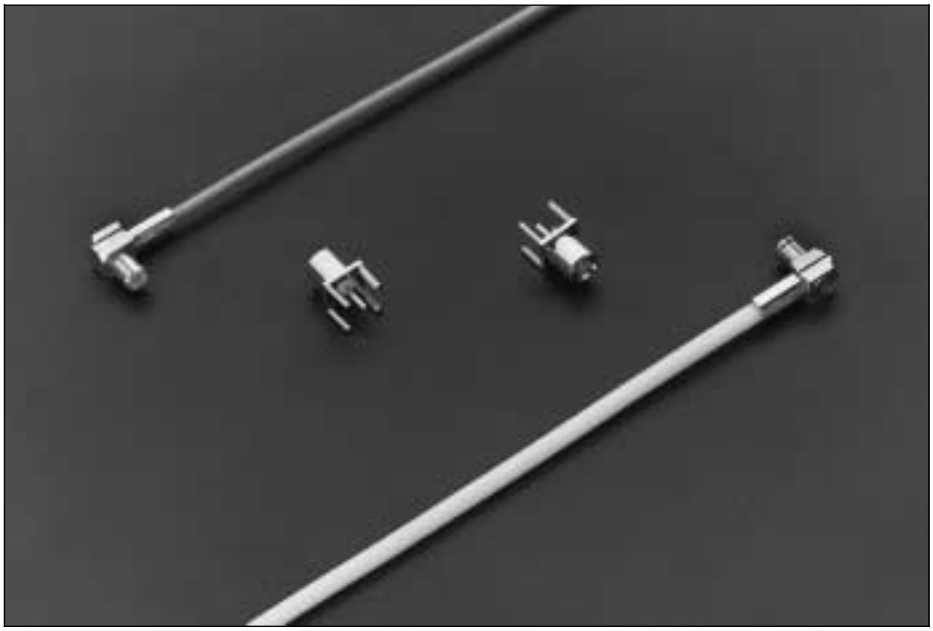
U Link with Test Port

Part Number
F50-A81-9011A90

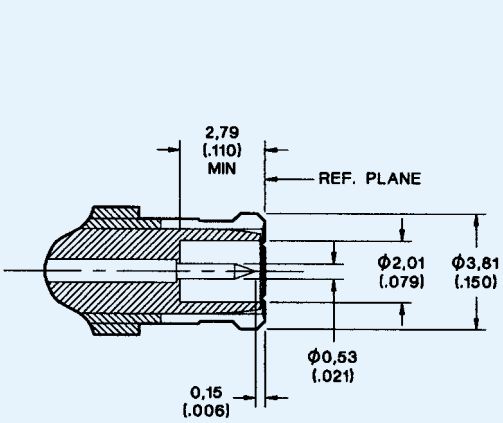


Introduction

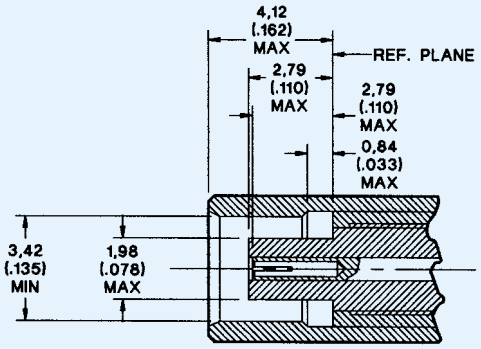
The microminiature MCX Connector has a simple but firm retention mechanism and operates in a frequency range up to 6 GHz. It is suitable for 50 Ω applications where RF screening is necessary. The small size of the MCX connector, between SMB and SSMB, allows a close packing of the components and the push-on/pull-off mating allows a rapid connect/disconnect facility. The MCX is particularly suited to applications in portable equipment or designs where space is a constraint. It is also popular in cellular telephony and information systems.



Mating Interfaces



MCX PLUG



MCX JACK

Specification

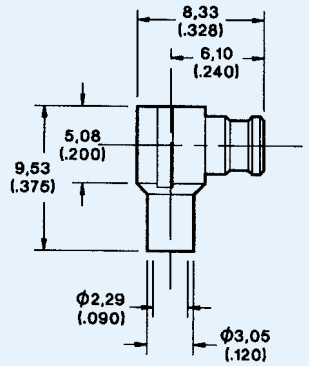
ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 6.0 GHz
	Working Voltage	335 Vrms
	Insulation Resistance	1000 MΩ
	Contact Resistance	5.0 mΩ maximum
	Voltage Standing Wave Ratio (VSWR)	1.28 maximum
	Outer Conductor Continuity	2.5 mΩ
	Insertion Loss	0.1 dB maximum @ 1 GHz
MECHANICAL	Engagement Force	15 N (3.4 lbs.) maximum
	Disengagement Force	20 N (4.5 lbs.) maximum. 10 N (2.25 lbs.) minimum
	Cable Retention Force	>60 N (13.5 lbs.) maximum
	Termination	Outer conductor: Crimp. Inner conductor: Solder
	Materials	Bodies, Body Components and Male Contact: Brass. Tine Body and Female Contact: Beryllium copper. Insulator: PTFE. Ferrule: Annealed copper alloy.
	Finish/Plating	Center Contact: Gold plated. Other metal parts gold or nickel plated (as specified)
ENVIRONMENTAL	Operating Temperature	−55° C to 155° C
GENERAL	Connector Durability	500 matings minimum

Body Plating Options
The following part number suffices can be specified for MCX connectors:
...T90 = gold plate
...220 = gold plate
...C90 = nickel plate

Plugs / Jacks

Right Angle Cable Plug

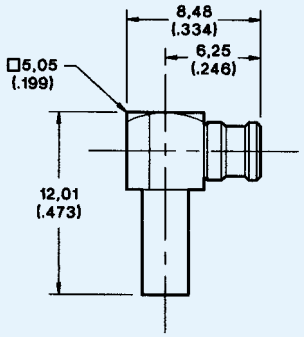
Part Number	Cable Number
051-C11-9072220	RG405/U



Assembly Instruction AI-755 (Page 126)

Right Angle Cable Plug

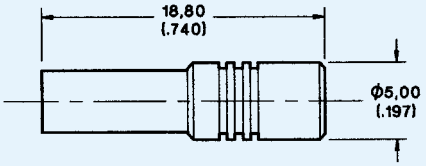
Part Number	Cable Numbers
051-C28-9019T90	RG178/U, 196/U
051-C28-9029T90	RG174/U, 316/U



Assembly Instruction BBAI-1212 (Page 110)

Straight Cable Jack

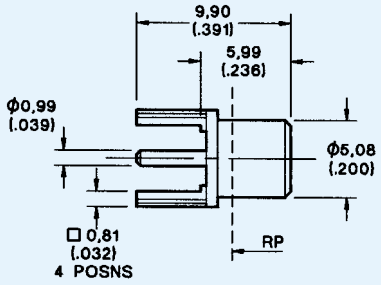
Part Number	Cable Numbers
051-C23-9188220	RG174/U, 316/U



Assembly Instruction AI-772 (Page 129)

Straight PCB Jack

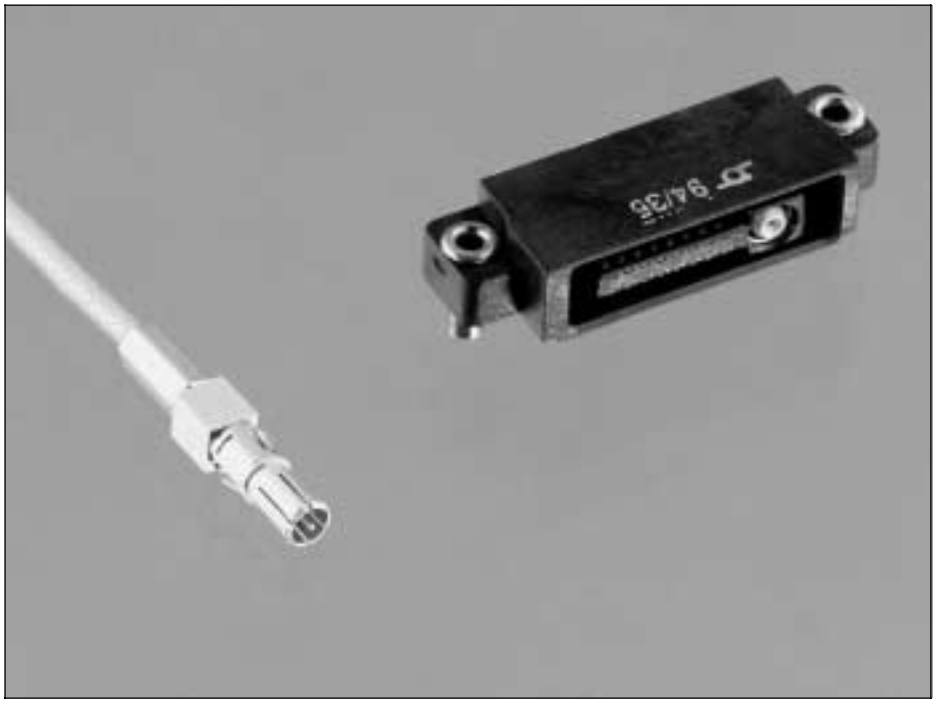
Part Number
051-C51-9039T90



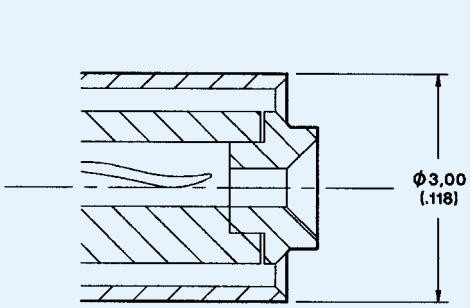
Mounting Plan B (Page 108)

Introduction

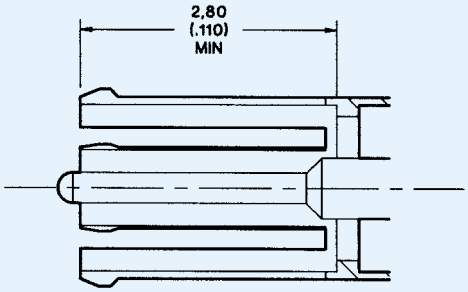
Microminiature connectors series MPC – Coax from ITT Cannon are suitable for microelectronic and telecommunication applications. e.g. Mobile telephones. This 50 Ω connector operates in a frequency range from DC to 2 GHz. (The frequency range can be extended to 6 GHz. Contact our Sales Department for details). The PCB connector is a surface mount design and is available with or without an integral RF switch. The cable plug to mate with it features solder or crimp termination. The design of the connector housing and the cable entry can be modified upon customer's request. The range also includes other styles not shown in this publication. Contact our Sales Department for further details.



Mating Interfaces



JACK



PLUG

Specifications

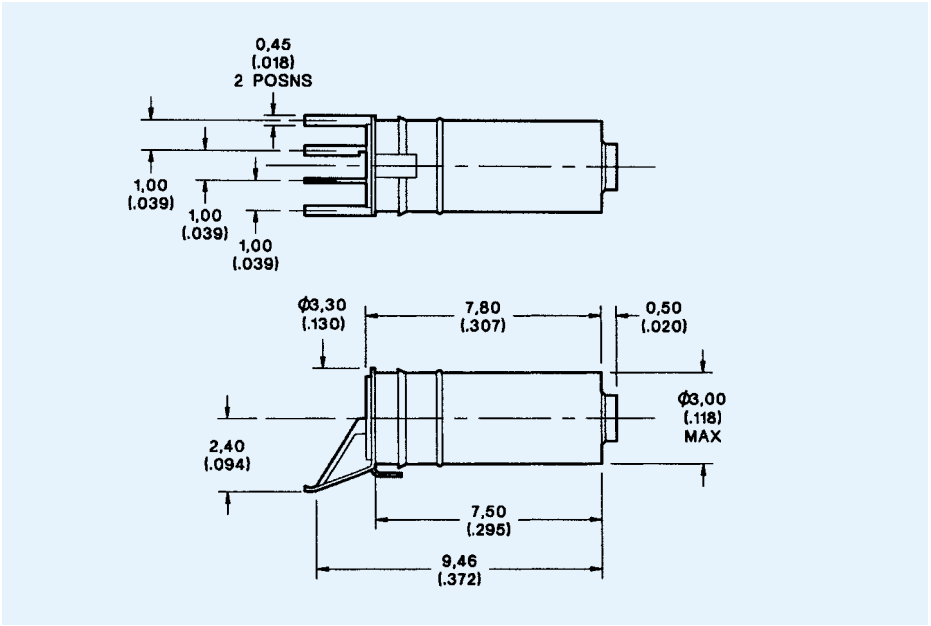
ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 2.0 GHz (see note below)
	Rated Voltage	500 Vrms at sea level
	Insulation Resistance	5000 MΩ minimum @ 100 V for 1 minute
	Contact Resistance	Mated pair of connectors: <5 mΩ max. Unmated switchable coax.: <10 mΩ max. Outer body: Initially <6 mΩ max. After 10k matings <9 mΩ max.
	Voltage Standing Wave Ratio (VSWR)	Mated pair of connectors: 1.222 max @ 1 GHz 1.404 max @ 2 GHz Unmated switchable coax: 1.222 max @ 1 GHz 1.404 max @ 2 GHz
	Contact Current Rating	1.0 A dc maximum
	Peak Current Capacity	1.5 A dc maximum for 1 minute
	Insertion Loss	Mated pair of connectors: <0.2 dB @ 1 GHz. <0.4 dB @ 2 GHz Unmated switchable coax: <0.2 dB @ 1 GHz <0.5 dB @ 2 GHz
	Isolation Between Switchable Contacts	24 dB when mated
	Maximum Power	2 W
MECHANICAL	Engagement Force	2 N (.45 lbs.) nominal
	Connector Retention Force (in its housing)	39.2 N (8.8 lbs.) nominal
	Disengagement Force	2 N (.45 lbs.) nominal
	Materials	Bodies: Brass and beryllium copper. Contacts: Beryllium copper. Insulators: Liquid crystal polymer and PTFE. Ferrule: Copper
	Finish/Plating	Contacts: Gold/Tin. Bodies: Gold. Body Legs: Gold/Tin. Ferrule: Nickel
ENVIRONMENTAL	Operating Temperature	−40° C to 85° C
	Humidity	90% relative humidity. (Temperature <40° C)
	Salt Spray	Survives a 35° C, 5% salt fog environment for 48 hours.
	Solder Systems	The parts withstand the following operations with no degradation in performance provided that a maximum temperature of 241° C (465° F) is not exceeded:– Hand soldering, Waveline soldering, Infrared reflow soldering, Vapour phase soldering.
GENERAL	Connector Durability	10,000 matings minimum

NOTE
The frequency range can be extended to 6 GHz. Contact Sales Department for details.

Jacks / Plugs

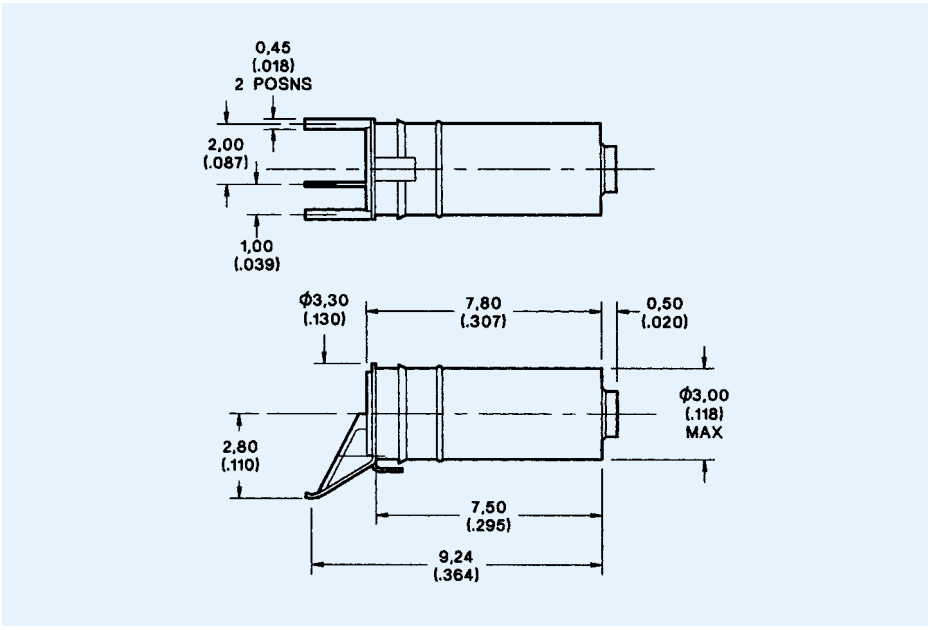
Jack, Horizontal PCB Surface Mount, Switching

Part Number
120220-0000



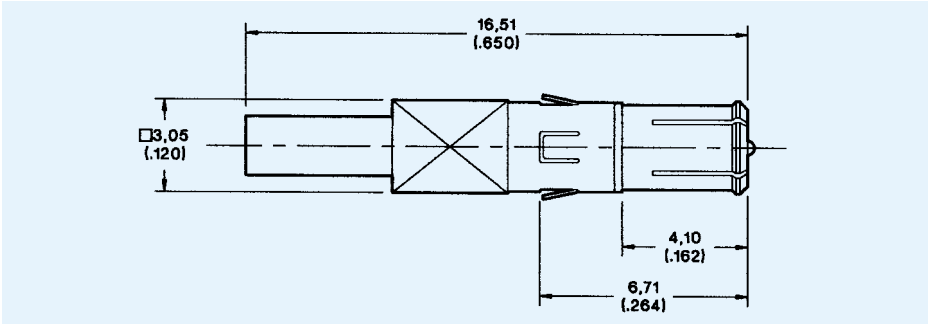
Jack, Horizontal PCB Surface Mount, Non-Switching

Part Number
120220-0005



Straight Plug for use with RG178/U

Part Number
120220-0001



Assembly Instruction BBAI-1228 (Page 137)

MPC-coax

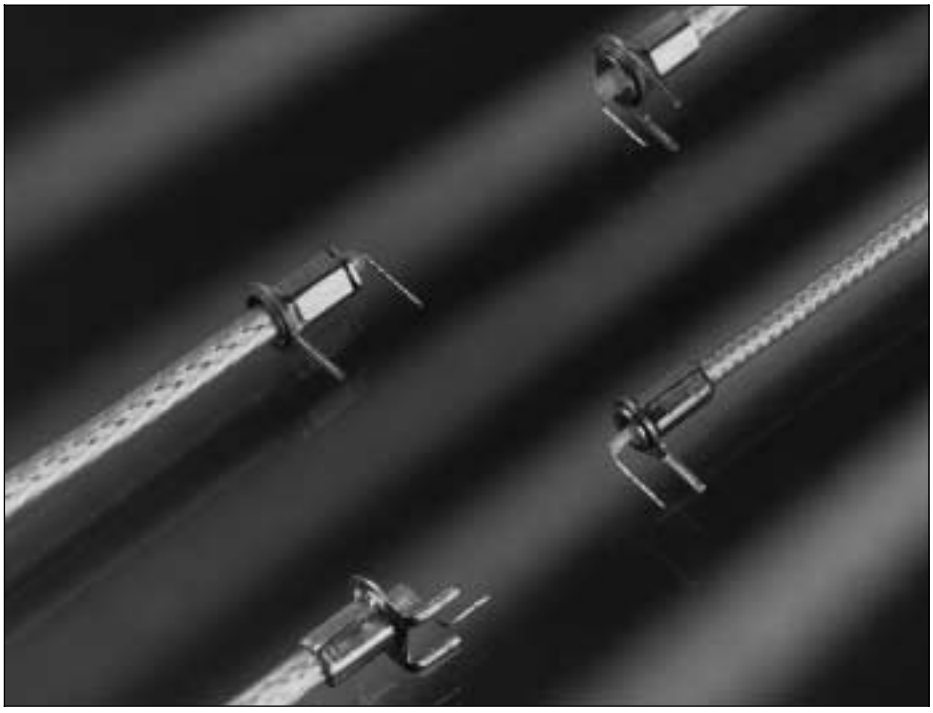
Introduction

ITT Cannon's Coaxial Terminators provide a low cost means of cable junction to a printed circuit where engagement and disengagement are not required. This method of terminating cable on PCBs eliminates the inconsistency associated with hard wiring.

Styles are available for a variety of popular RG series cable types and cables of similar dimensions. The tapered leg is an interference fit into the PCB hole enabling pre-assembly for wave soldering.

Coaxial Terminators feature:
- Low cost
- Easy to assemble
- Only two piece parts
- Surface mount option
- No solder transfer down braid
- Good stability – two point fixing
- Variable pitch, 2,50 (.098) – 10,00 (.393)

All parts have electro-plated tin finish.

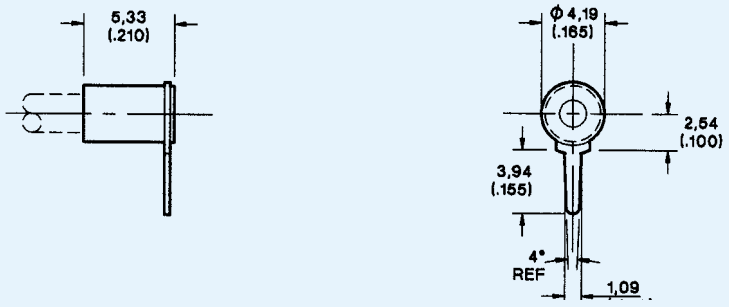


Terminators

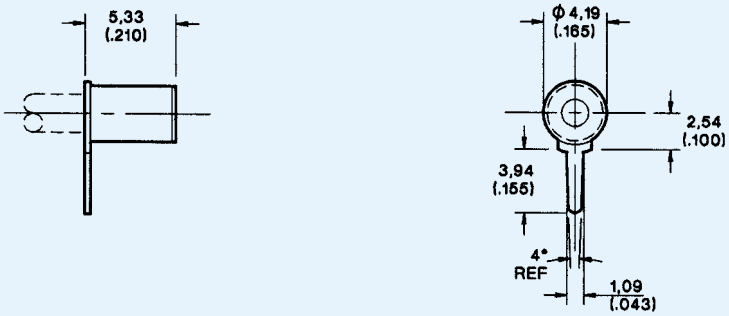
Single Leg

Part Number	Cable Numbers
055-939-9019AR6	RG178/U, 196/U
055-939-9029AR6	RG174/U, 179/U, 188/U, 316/U

NOTE
Both part numbers may be assembled with leg either at front or rear.



Assembled with Leg at Front. Mounting Plan R



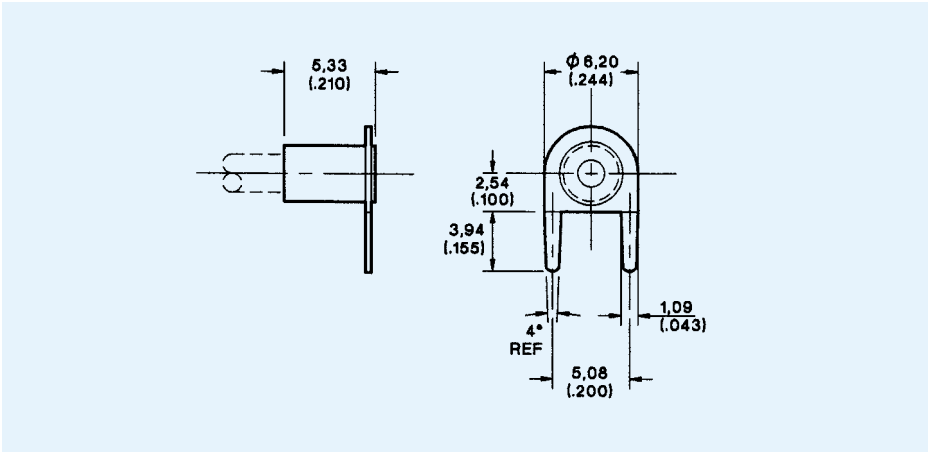
Assembled with Leg at Rear. Mounting Plan S

Assembly Instruction BBAI-1203 (Page 134)

Terminators

Two Legs at Front – Standard

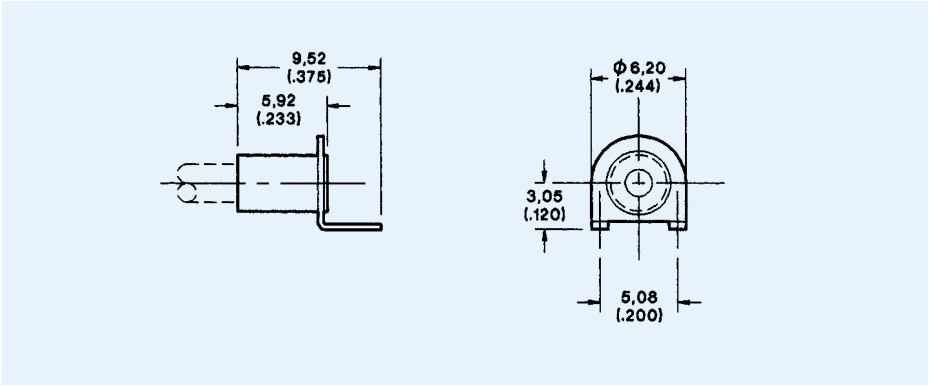
Part Number	Cable Numbers
055-939-9039AR6	RG178/U, 196/U
055-939-9049AR6	RG174/U, 179/U, 188/U, 316/U



Mounting Plan T (Page 109). Assembly Instruction BBAI-1203 (Page 134)

Two Legs at Front – Surface and Vertical Mount

Part Number	Cable Numbers
055-939-9059AR6	RG178/U, 196/U
055-939-9069AR6	RG174/U, 179/U, 188/U, 316/U



Mounting Plan T (Page 109). Assembly Instruction BBAI-1203 (Page 134)

Terminator

Introduction

ITT Cannon High Frequency Slide-on Connectors provide the utmost reliability and performance in low VSWR interconnections up to and beyond 18 GHz through unique designs. These connectors are now installed in major military and commercial equipments as a result of intense testing of electrical and mechanical performance against all other devices claiming similar characteristics.

The main advantages of slide-on coaxial interconnection are weight savings, space savings and faster, easier and more positive connect/disconnect operations. Their use completely eliminates interconnection cable assemblies between units and the need to torque up mating connectors. As a result the components themselves may be reduced in size as bulkhead mounting center to center spacing is much less. Tolerances on mounting holes and hole center lines need not be tighter than ± 0,13 (.005) and large chamfers ensure proper alignment.

Typical applications include:

- Blind mating for rack and panel
- Gang mounted cable
- Slide-in components
- Production test equipment
- Quick connect or disconnect of cables
- Printed circuit boards
- Strip transmission lines
- Microstrip
- Multiple matings
- Special i.f., r.f., pulse, digital or video circuits

Slide-On SMA Plugs
These are designed to allow a reliable and fast method of testing equipment. This connector mates with the standard SMA jack. They completely eliminate the need for torquing and yet provide comparable SMA electrical performance with no wear and tear on the threads of the unit under test.

SMS Connectors
Certified by DESC and designated BMB™, having a similar line size to SMA, these connectors are ideal for rack and panel applications. The float mechanism allows both radial and axial float to compensate for misalignment and allow blind mating.

SIS® Connectors
These have a line size between SMA and SSMA and were primarily designed for use with stripline or microstrip. They may be used as a two piece plug-to-jack combination or more popularly as a three piece consisting of the two bulkhead plugs with a jack-to-jack adaptor in between. This float mount design eliminates cable assemblies and offers a design opportunity to miniaturise equipment.

SSIS® Connectors
This smaller version of the SIS connector offers an even greater design opportunity for decreasing the size of equipment.

CMM Connectors
These are even smaller and the non-butting interface maintains good electrical performance without having to float mount one or both of the connectors.

All the above connector ranges are suitable for use with r.f. and microwave modular design systems.

Introduction

The SMA Slide-On Plug is designed to fill the need of components and systems manufacturers, for a reliable, fast method of testing.

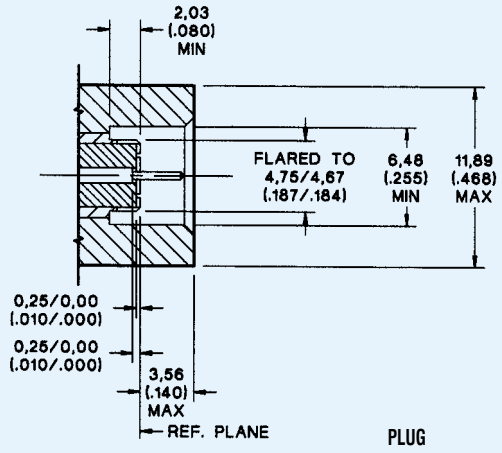
They completely eliminate the need for torquing and yet provide absolutely comparable electrical performance with no wear and tear on threads of unit under test.

These units mate with standard SMA jack connectors.

Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 18.0 GHz
	Insulation Resistance	5000 MΩ minimum
	Contact Resistance	Center contact: 3.0 mΩ maximum. Outer contact: 3.0 mΩ maximum
	Contact Current Rating	2.0 A dc maximum
	Insertion Loss	.03 $\sqrt{\text{freq. GHz}}$ tested at 6 GHz
	RF Leakage	−55 dB min. @ 2-3 GHz
	Voltage Standing Wave Ratio (VSWR)	Straight: 1.05 + .005F Right Angle: 1.05 + .01F
MECHANICAL	Materials	Body, Body Components: Non-magnetic stainless steel and 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 to meet the finish and corrosion requirements of MIL-C-39012
	Engagement Forces	8.9 N (2 lbs.) nominal
	Contact Torque	0.03 Nm (4 in. ozs.) minimum. (Captivated contacts)
	Contact Retention	Unless otherwise specified, all connectors feature captivated contacts. When captivated the contacts will withstand 26.7 N (6 lbs.) minimum axial force.
ENVIRONMENTAL	Operating Temperature	−65° C to 125° C
	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	MIL-STD-202, Method 213, test condition I, (100 G's)
	Thermal Shock	MIL-STD-202, Method 107, test condition B except high temperature shall be 85°C.
	Moisture Resistance	MIL-STD-202. Method 106. No measurements at high humidity. Insulation resistance shall be 200 MΩ minimum within five minutes after removal from humidity.
GENERAL	Connector Durability	500 matings minimum

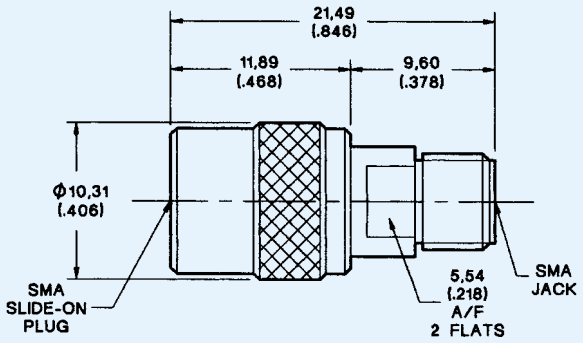
Mating Interface



Adaptors

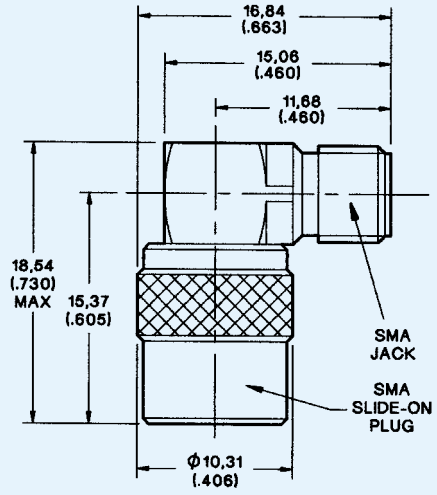
SMA Slide-On Plug to SMA Standard Jack Adaptor - Straight

Part Number
050-674-6324990



SMA Slide-On Plug to SMA Standard Jack Adaptor - Right Angle

Part Number
050-678-6324990



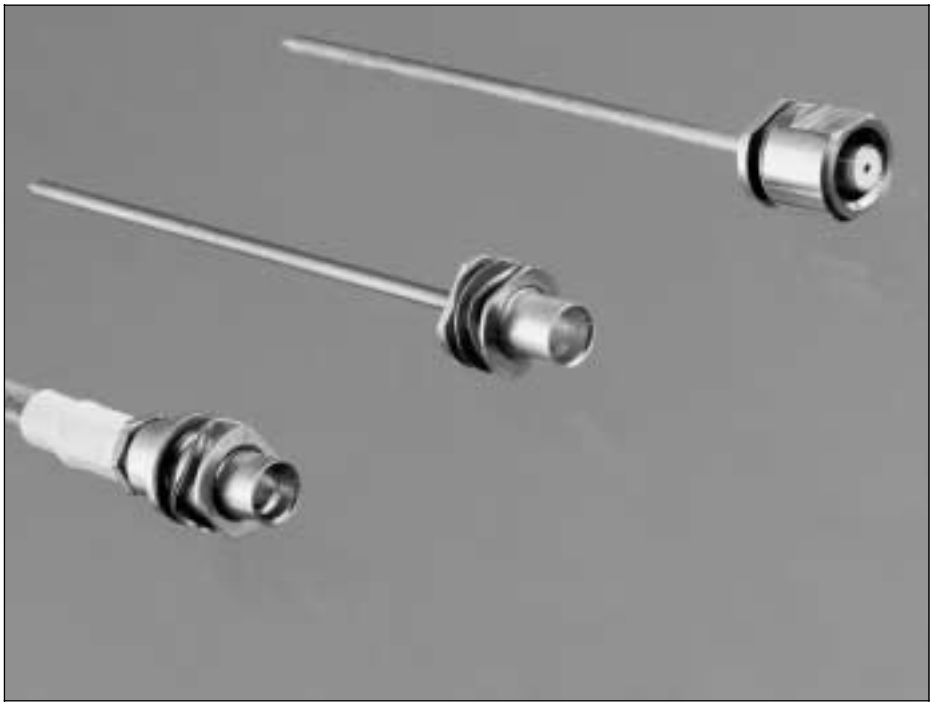
Introduction

ITT Cannon SMS Connectors are suitable for general applications such as module to module or cable to component connections. All line sizes and specifications are the same as standard threaded SMA connectors, though they will not mate with them. Standard designs for 2,16 (.085) and 3,59 (.141) semi-rigid cables makes assembly simple with standard SMA tool kits.

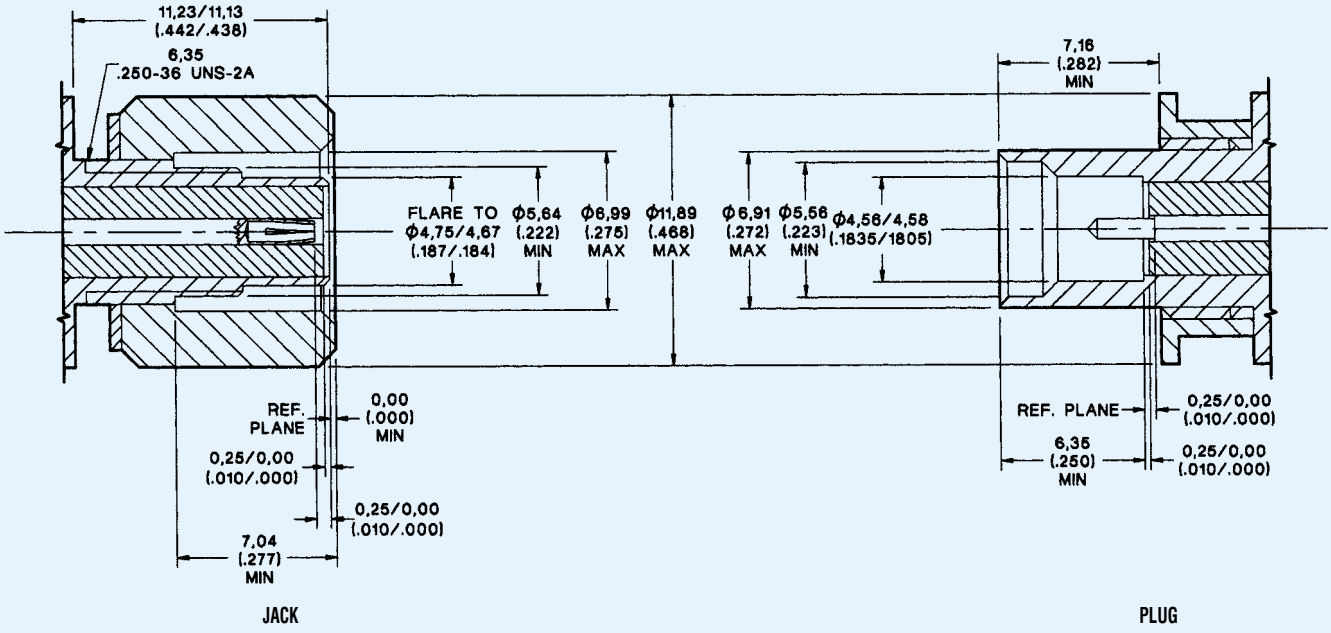
The minimum spacing between connectors is 12,70 (.500) with 0,51 (.020) radial and 1,52 (.060) axial float. It is recommended that the spacing between panels is such that the floating connector is ''loaded'' to approximately 1,02 (.040) leaving 0,51 (.020) for tolerance build up.

Spacing between panels is normally 11,30 (.445), 2,54 (.100) for the recessed bulkhead mount. Mounting hole information may be found at the rear of the publication.

The SMS series is certified by DESC and is designated Series BMB.



Mating Interfaces



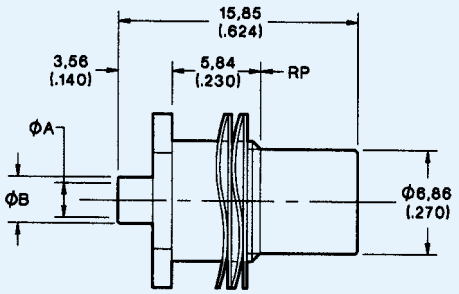
Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 18.0 GHz
	Voltage Rating	Connectors used with RG316/U series cable: At Sea Level = 250 Vrms. At 70k Feet = 65 Vrms
	Insulation Resistance	5000 MΩ minimum
	Contact Resistance	Center Contact = 3.0 mΩ maximum Outer Contact = 2.0 mΩ maximum Braid to Body = 0.5 mΩ maximum
	Contact Current Rating	2.0 A dc maximum
	Insertion Loss	Connectors for RG402/U, 405/U series cables: $0.06 \times \sqrt{\text{freq. GHz}}$ tested at 6 GHz Connectors for RG316/U, 142/U series cables: $0.06 \times \sqrt{\text{freq. GHz}}$ tested at 6 GHz
	RF Leakage	−55 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. (F = GHz)	Connector configuration Cable group / Straight / Right Angle RG402/U: 1.10 + .005F / 1.10 + .01F RG405/U: 1.10 + .005F / 1.10 + .01F RG316/U: 1.15 + .02F / 1.15 + .03F RG142/U: 1.15 + .01F / 1.15 + .02F
	Dielectric Withstanding Voltage (DWV)	Connectors used with RG405/U, 316/U series cable = 750 Vrms @ Sea Level
	Corona Level	Connectors used with RG405/U series cable = 335 V @ 21 km (70k feet) Connectors used with RG316/U series cable = 190 V @ 21 km (70k feet)
MECHANICAL	Engagement Force	8.9 N (2 lbs.)
	Contact Torque	0.03 Nm (4 in. ozs.) minimum. (Captive contact)
	Materials	Body, body components: Non-magnetic stainless steel and beryllium copper. Female Contacts: Beryllium copper. Insulators: TFE fluorocarbon. Crimp Ferrule: Annealed copper alloy. Gaskets: Silicone rubber
	Finish/Plating	Center Contacts: Gold Plated. Other Metal Parts: Gold plated or passivated to meet the finish and corrosion requirements of MIL-C-39012
ENVIRONMENTAL	Temperature Rating	−65°C to 125°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	MIL-STD-202, Method 213, test condition I, (100 G's)
	Thermal Shock	MIL-STD-202, Method 107, test condition B, except high temperature shall be 85°C. High temperature shall be 115°C for connectors using semi-rigid cables.
	Moisture Resistance	MIL-STD-202. Method 106. No measurements 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 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.

Plugs

Straight Plug, Float Mount, Direct Solder

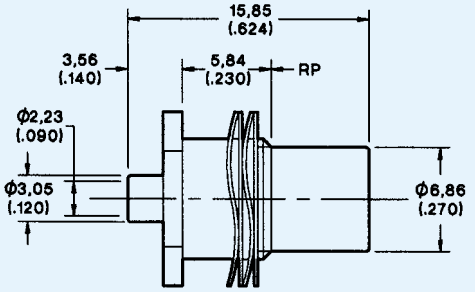
Part Number	Cable Size	A	B
052-609-9137990	2,16 (.085)	2,29 (.090)	3,05 (.120)
052-609-9237990	3,59 (.141)	3,69 (.145)	4,58 (.180)



Mounting Plan O (Page 108). Assembly Instruction AI-436 (Page 119)

Straight Plug, Float Mount, Direct Solder, Anti-Cocking Design

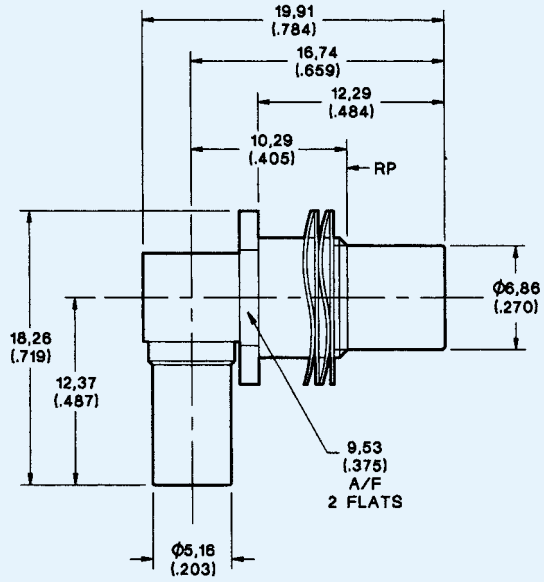
Part Number	Cable Number
052-609-0279990	RG405/U



Mounting Plan O (Page 108). Assembly Instruction AI-436 (Page 119)

Right Angle Plug, Float Mount, Direct Solder

Part Number	Cable Size
052-611-9137990	2,16 (.085)
052-611-9237990	3,59 (.141)



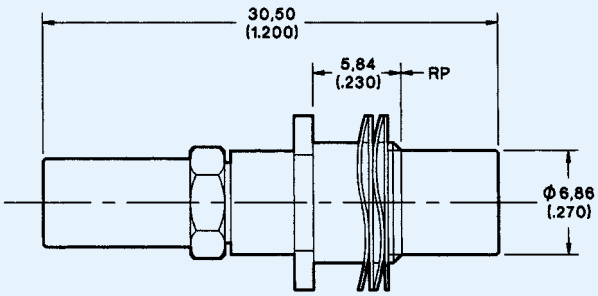
Mounting Plan O (Page 108). Assembly Instruction AI-499 (Page 119)

SMS

Plugs

Straight Plug, Float Mount, Crimp

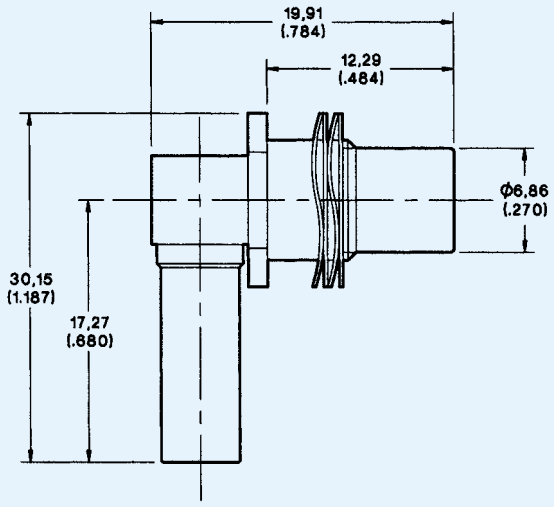
Part Number	Cable Numbers
052-626-9416990	RG188/U, 316/U
052-626-9052990	RG142/U



Mounting Plan O (Page 108). Assembly Instruction AI-504 (Page 122)

Right Angle Plug, Float Mount, Crimp

Part Number	Cable Number
052-629-9416990	RG316/U
052-629-9052990	RG142/U

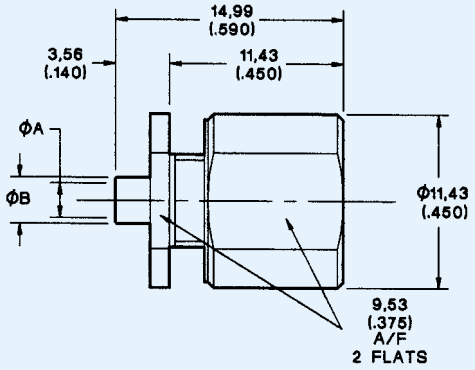


Mounting Plan O (Page 108). Assembly Instruction AI-472 (Page 120)

Jacks

Straight Jack, Bulkhead Mount, Direct Solder

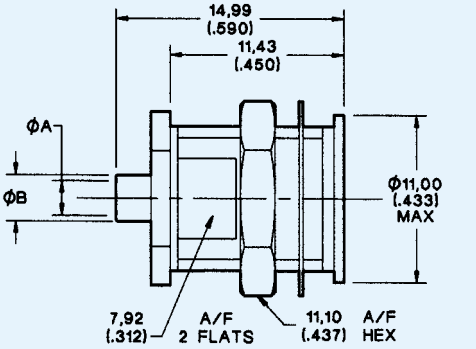
Part Number	Cable Size	A	B
052-610-9137990	2,16 (.085)	2,29 (.090)	3,05 (.120)
052-610-9237990	3,59 (.141)	3,69 (.145)	4,58 (.180)



Mounting Plan L (Page 108). Assembly Instruction AI-436 (Page 119)

Straight Jack, Recessed Bulkhead Mount, Direct Solder

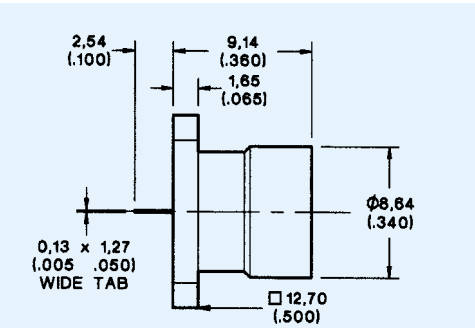
Part Number	Cable Size	A	B
052-615-9072990	2,16 (.085)	2,29 (.090)	3,05 (.120)



Mounting Plan DD (Page 109). Assembly Instruction AI-436 (Page 119)

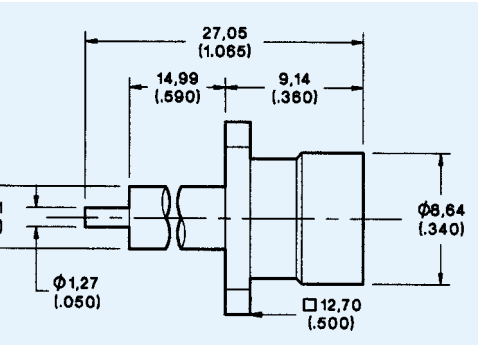
Jack Receptacle, Square Flange Mount *, Tab Contact

Part Number
052-645-4575990



Jack Receptacle, Square Flange Mount *, Stub Contact

Part Number
052-645-4520990



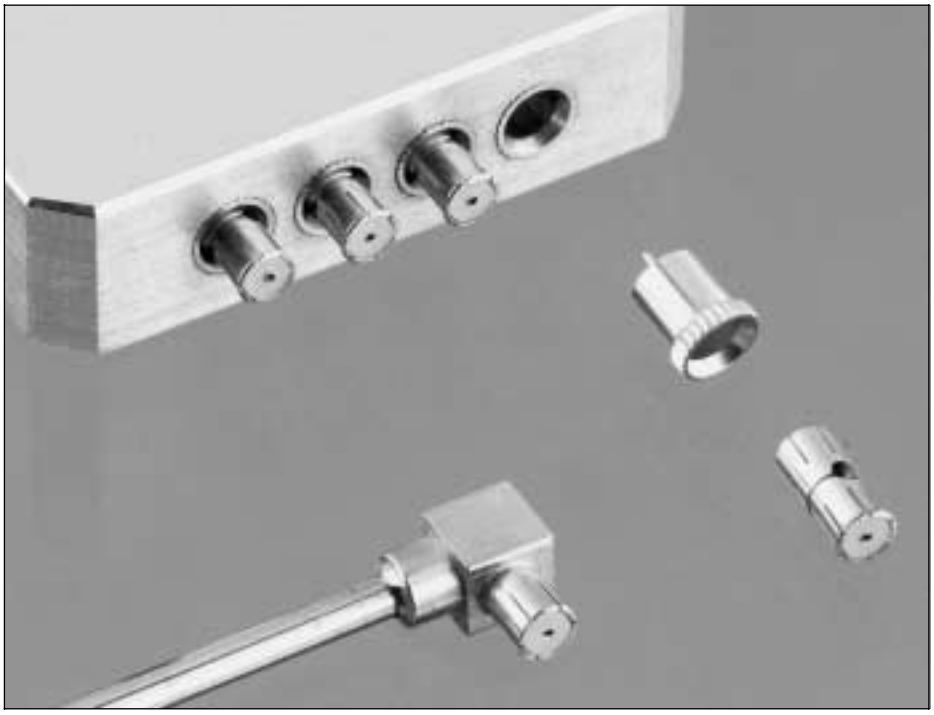
* Flange dimensions are shown in the SMA section (Page 13).

SMS

Introduction

ITT Cannon Intermediate Slide-On Series (SIS) have a line size between SMA and SSMA and were primarily designed for use with stripline or microstrip. However, adaptors to other series and printed circuit board connectors have been added to the SIS connector line.

As shown below, they may be used as a two piece plug-to-jack combination or as a three piece; the three pieces consisting of the two bulkhead plugs with a jack-to-jack adaptor in between. Modular flush mounting construction of modules/boxes is achieved by use of recessed plugs which are coaxially interconnected using specially designed slide-on jack-to-jack adaptors. By virtue of this special design synchronous multiple connections per module can be achieved without special attention to tolerances, whilst maintaining electrical and mechanical integrity. Float mounts are not required since alignment is achieved by the articulation of the adaptor within the plugs. The recommended minimum distance between outerlines of gang mounted connectors is 7,29 (.287).

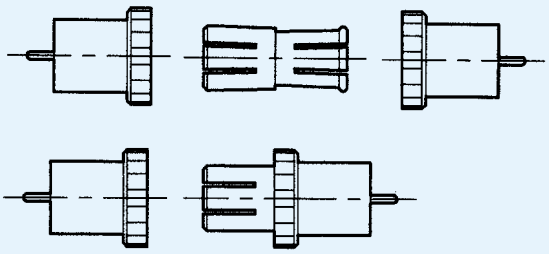


Mounting hole information may be found on pages 108 and 109.

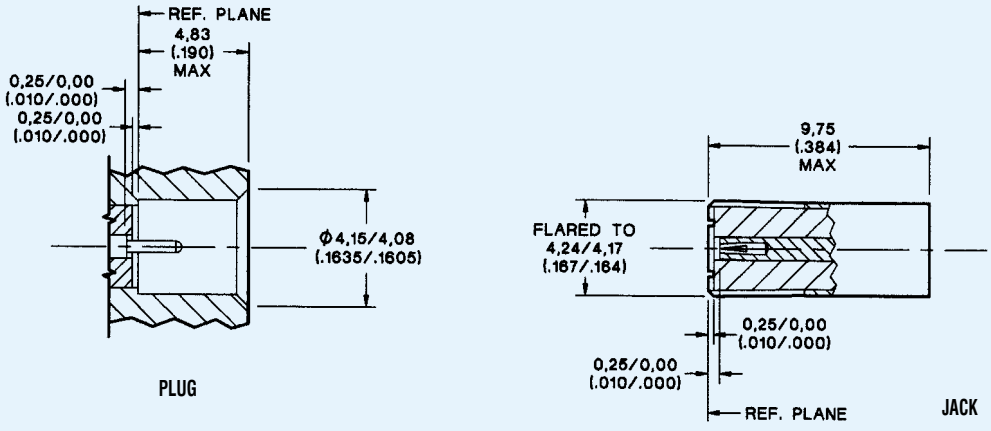
Possible Design Combinations

Three Piece Design

Two Piece Design



Mating Interfaces



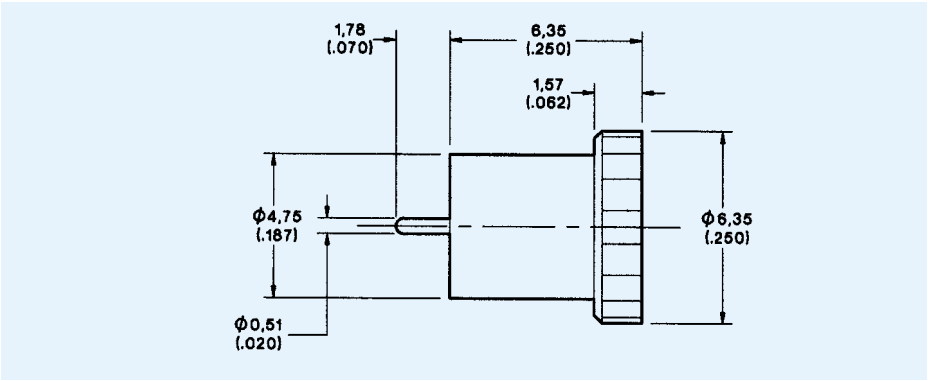
Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 18.0 GHz
	Voltage Rating	At sea level = 250 Vrms. At 21 km (70k feet) = 60 Vrms
	Insulation Resistance	1000 MΩ minimum
	Contact Resistance	Center Contact = 3.0 mΩ maximum Outer Contact = 3.0 mΩ maximum Outer conductor to Body = 0.5 mΩ maximum
	Contact Current Rating	1.0 A dc maximum
	Insertion Loss	0.06 x $\sqrt{\text{freq. GHz}}$ tested at 6 GHz
	RF Leakage	−55 dB minimum @ 2 - 3 GHz
	Voltage Standing Wave Ratio (VSWR) To 18.0 GHz or 80% of upper cut-off frequency of the cable, whichever is lower. (F=GHz)	1.05 + .008F
	Dielectric Withstanding Voltage (DWV)	1000 Vrms @ sea level (uncabled)
	Corona Level	125 V minimum @ 21 km (70k feet)
MECHANICAL	Engagement Force	8.9 N (2 lbs.)
	Contact Torque	0.03 Nm (4 in. ozs.) minimum. (Captive contact)
	Materials	Body, body components: Non-magnetic stainless steel and beryllium copper. Female Contacts: Beryllium copper. Insulators: PTFE.
	Finish/Plating	Center Contacts: Gold Plated. Other Metal Parts: Gold plated to meet the finish and corrosion requirements of MIL-C-39012
ENVIRONMENTAL	Temperature Rating	−65°C to 125°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	MIL-STD-202, Method 213, test condition I, (100 G's)
	Thermal Shock	MIL-STD-202, Method 107, test condition B, except high temperature shall be 85°C.
	Moisture Resistance	MIL-STD-202. Method 106. No measurements 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.

Plugs / Jacks / Adaptors / Receptacles

Bulkhead Plug, Stub Contact, Press-in Mount

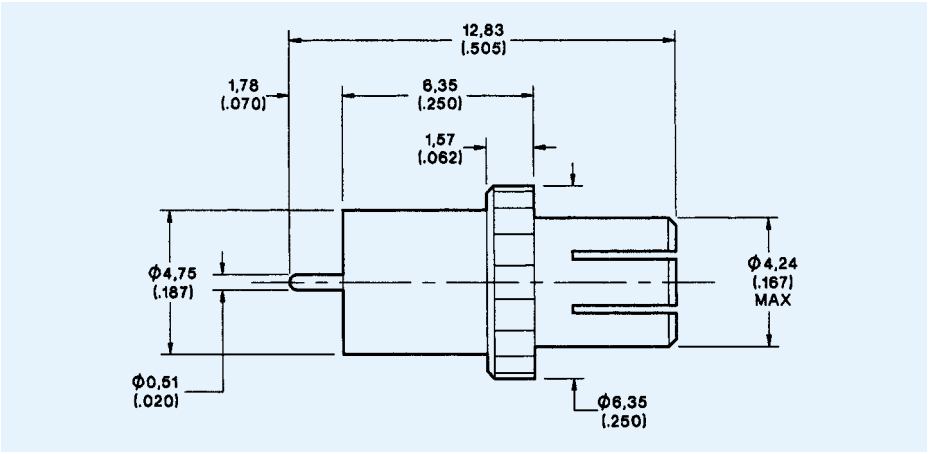
Part Number
052-946-0039310



Mounting Plan EE (Page 109)

Bulkhead Jack, Stub Contact, Press-in Mount

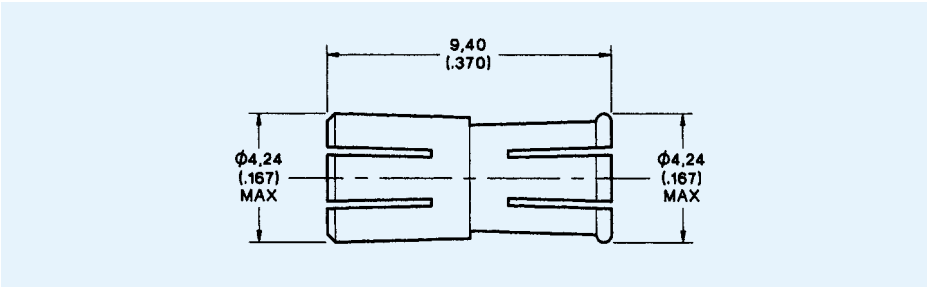
Part Number
052-943-0089220



Mounting Plan EE (Page 109)

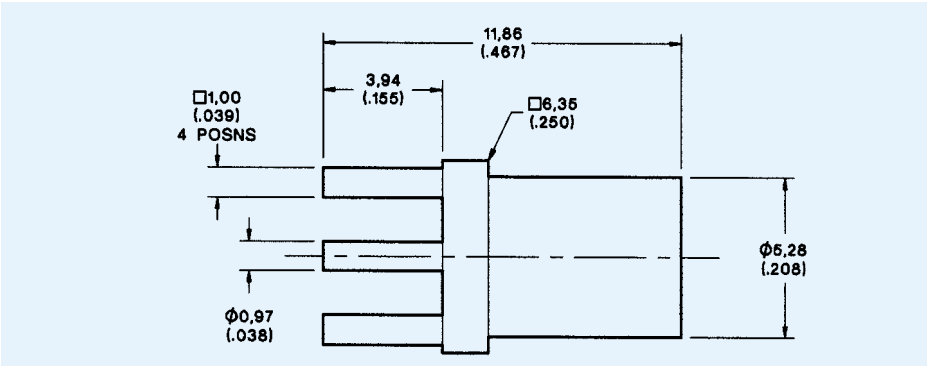
Jack-to-Jack Adaptor

Part Number
052-972-0019220



Plug Receptacle, PCB Mount

Part Number
052-952-0000310



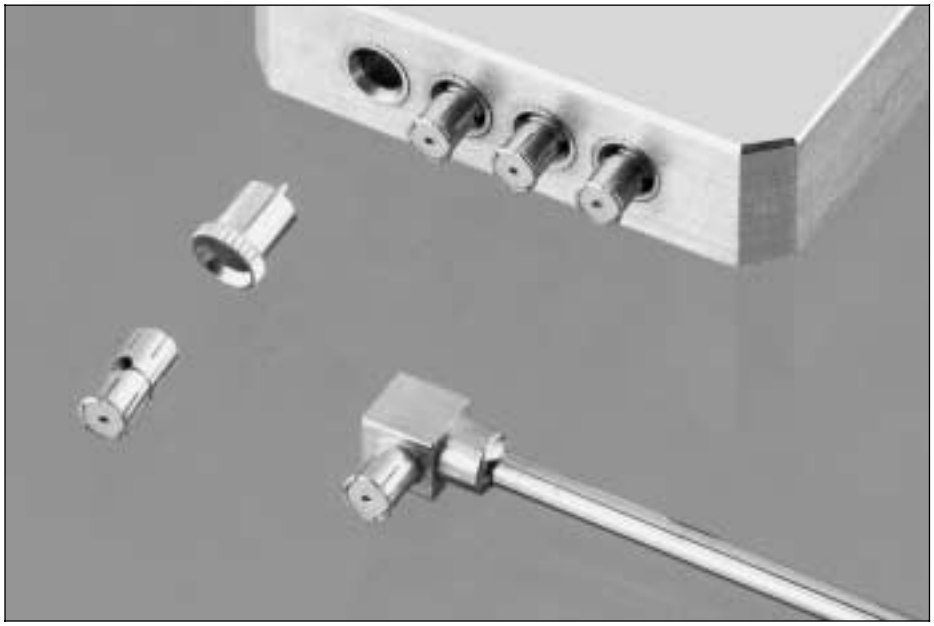
Mounting Plan A (Page 108)

Introduction

ITT Cannon Subminiature Intermediate Slide-On Series (SSIS) Connectors are miniature versions of the SIS range. The jack-to-jack adaptor has been designed to bias the mating forces. This feature ensures that the components will be retained in the desired module. One end of the adaptor has a higher engagement/separation force than the other. Consequently at separation the high force end of the adaptor will remain in one module while the low force end slides free.

In typical applications it has not been found necessary to provide guide pins, although a fastening mechanism to lock the modules together would be needed to sustain the effects of vibration and shock.

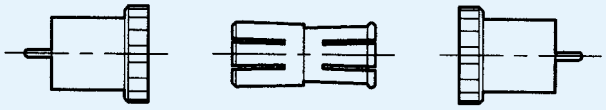
As shown below, they may be used as a two piece plug-to-jack combination or as a three piece plug-to-jack-to-jack-to-plug connector. The three pieces consisting of the two bulkhead plugs with a jack-to-jack adaptor in between. With both combinations, one plug can be floating to increase the axial and radial float to 0,25 (.010) and 0,38 (.015) respectively.



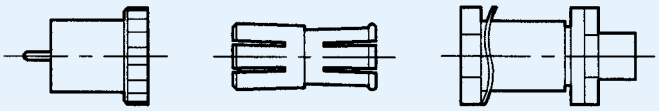
The recommended minimum distance between outerlines of gang mounted connectors is 5,53 (.218) for the hard mounted designs and 7,14 (.281) for the float mounted. Mounting hole information may be found at the rear of the publication.

Possible Design Combinations

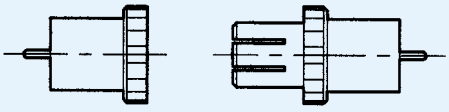
Three Piece Design, Both Hard Mounted



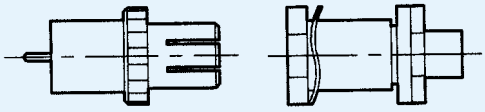
Three Piece Design, One Side Floating



Two Piece Design, Both Hard Mounted



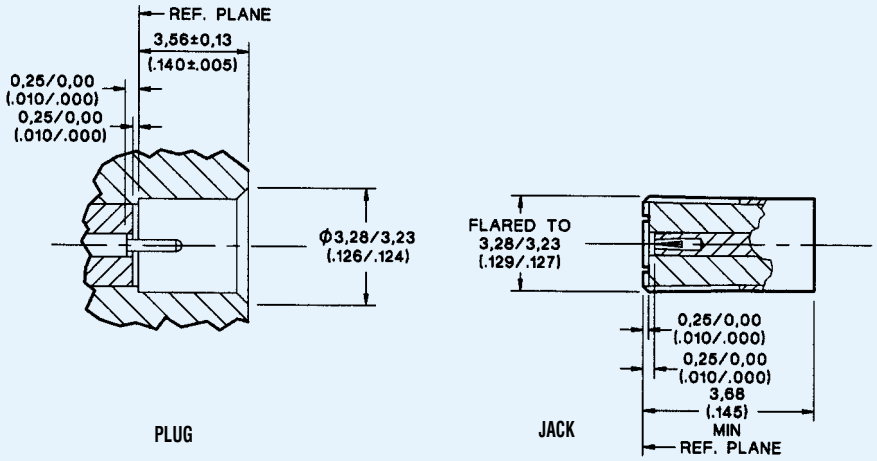
Two Piece Design, One Side Floating



Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Frequency Range	0 to 18.0 GHz
	Voltage Rating	At sea level = 250 Vrms. At 21 km (70k feet) = 60 Vrms
	Insulation Resistance	1000 MΩ minimum
	Contact Resistance	Center Contact = 3.0 mΩ maximum. Outer Contact = 3.0 mΩ maximum Outer Conductor to Body = 0.5 mΩ maximum
	Contact Current Rating	1.0 A dc maximum
	Insertion Loss	0.06 x $\sqrt{\text{freq. GHz}}$ tested at 6 GHz
	RF Leakage	−55 dB minimum @ 2 - 3 GHz
	Voltage Standing Wave Ratio (VSWR) To 18.0 GHz or 80% of upper cut-off frequency of the cable, whichever is lower (F=GHz)	1.05 + .008F
	Dielectric Withstanding Voltage (DWV)	500 Vrms @ sea level
	Corona Level	125 V minimum @ 21 km (70k feet)
MECHANICAL	Engagement Force	8.9 N (2 lbs.)
	Contact Torque	0.015 Nm (2 in. ozs.) minimum
	Materials	Body, body components: Non-magnetic stainless steel and beryllium copper.
	Finish/Plating	Female Contacts: Beryllium copper. Insulators: TFE fluorocarbon. Center contacts & other metal parts: Gold plated to meet the finish and corrosion requirements of MIL-C-39012
ENVIRONMENTAL	Temperature Rating	−65°C to 125°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	MIL-STD-202, Method 213, test condition I, (100 G's)
	Thermal Shock	MIL-STD-202, Method 107, test condition B, except high temperature shall be 85°C. High temperature shall be 115°C for connectors using semi-rigid cables.
	Moisture Resistance	MIL-STD-202. Method 106. No measurements 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 8.9 N (2 lbs.) minimum axial force.
	Cable Retention	When properly assembled to RG 405/U semi-rigid cable the retention is 133 N (30 lbs.) minimum

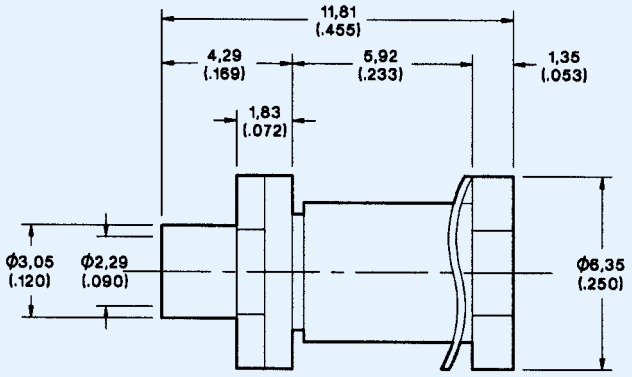
Mating Interfaces



Plugs

Bulkhead Cable Plug, Float Mount

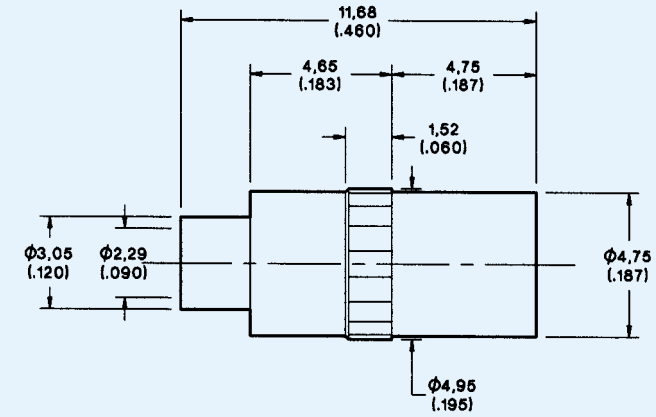
Part Number	Cable Number
052-909-8039310	RG405/U



Mounting Plan I (Page 108). Assembly Instruction AI-480 (Page 121)

Cable Plug, Press-in Mount

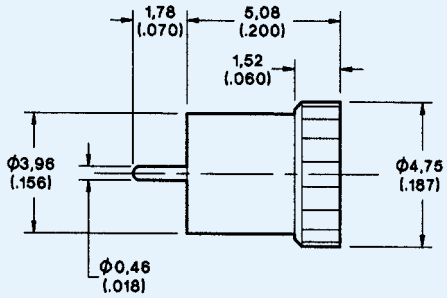
Part Number	Cable Number
052-909-8129310	RG405/U



Mounting Plan (Apply ITT Cannon Sales Dept.). Assembly Instruction AI-523 (Page 119)

Bulkhead Plug, Stub Contact, Press-in Mount

Part Number
052-946-8139310

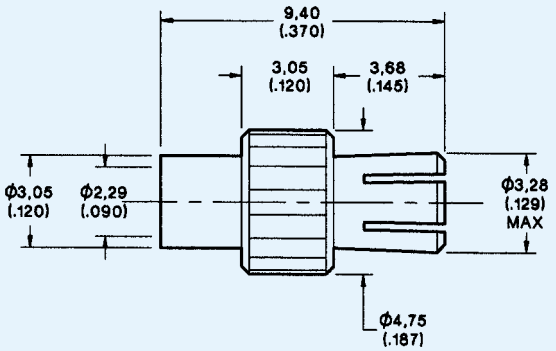


Mounting Plan FF (Page 109)

Jacks

Cable Jack, Press-in Mount

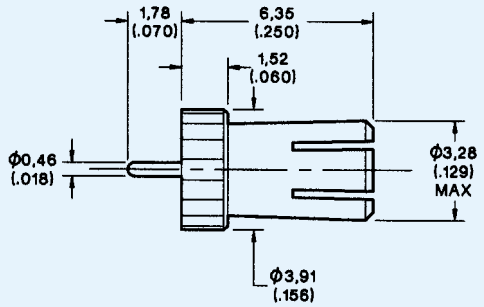
Part Number	Cable Number
052-908-8049220	RG405/U



Mounting Plan FF (Page 109). Assembly Instruction AI-632 (Page 124)

Bulkhead Jack, Stub Contact, Press-in Mount

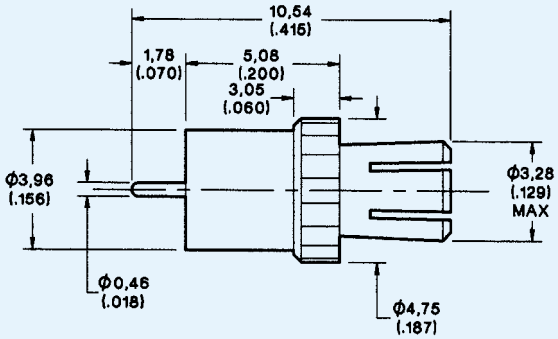
Part Number
052-943-8109220



Mounting Plan FF (Page 109)

Bulkhead Jack, Extended Stub Contact, Press-in Mount

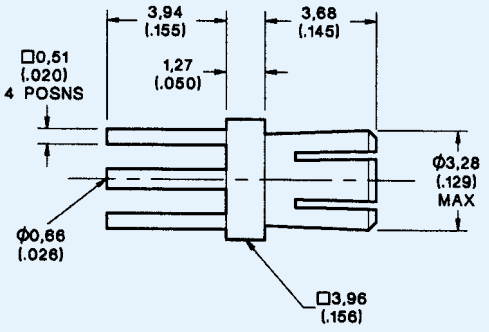
Part Number
052-943-8169220



Mounting Plan FF (Page 109)

Jack Receptacle, PCB Mount

Part Number
052-951-8000220

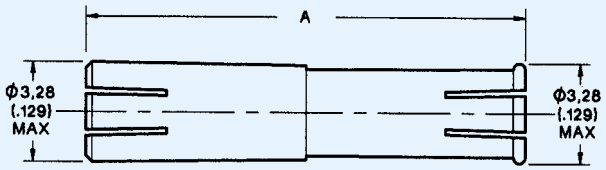


Mounting Plan G (Page 108)

Adaptors

Jack-to-Jack Adaptor

Part Number	A
052-972-8129220	12,70 (.500)
052-972-8049220	7,12 (.280)



Introduction

The microminiature CMM Connector is self aligning. It is designed to provide a degree of radial and angular misalignment in mating to accommodate dimensional variations of the connectors and mounting panels. These fixed mount misalignment conditions are:

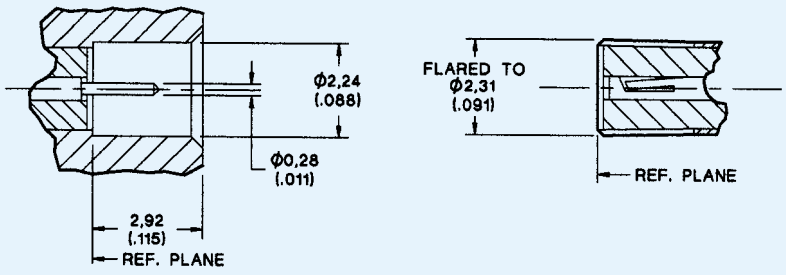
Radial misalignment	0,16 (.006) max total
Axial misalignment	0,51 (.020) max total

A feature of the CMM is a non-butting interface. The interface does not require the reference plane to butt to yield good performance. This is key to gang mounting the connectors without having to float mount one or both of the connectors.

Applications

- Applications with size and/or weight constraints
- Blind mating for rack and panel applications
- All forms of RF/microwave modular systems
- Systems requiring gang mounting
- Quick connect or disconnect of high frequency systems
- Radar systems with antenna elements in close proximity
- Can be used with stripline and microstrip transmission lines

Mating Interfaces



PLUG JACK

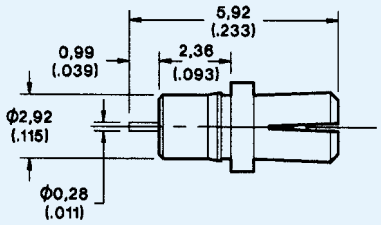
Specifications

ELECTRICAL	Impedance	50 Ω nominal
	Voltage Standing Wave Ratio (VSWR)	To 26.5 GHz or 80% of upper cut-off frequency of the cable, whichever is lower (F = GHz): 1.05 + .01F
	Frequency Range	0 to 26.5 GHz
	Insertion Loss	.06 $\sqrt{\text{freq. GHz}}$ tested at 6 GHz
MECHANICAL	Engagement Force	13.3 N (3 lbs.) nominal
	Contact Torque	0.014 Nm (2 in. ozs.) minimum
	Materials	Body, body components: Non-magnetic stainless steel and beryllium copper. Female Contacts: Beryllium copper. Insulators: PTFE.
	Finish/Plating	Center Contacts: Gold Plated. Other Metal Parts: Gold plated to meet the finish and corrosion requirements of MIL-C-39012
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.

Jacks / Plugs

Jack, Slide-on

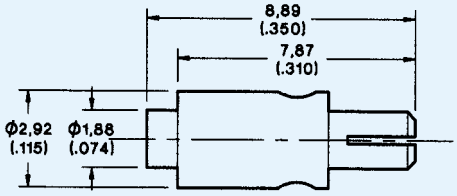
Part Number
052-943-8259310



Consult Sales Department for Mounting Details

Jack, Slide-on, Direct Solder

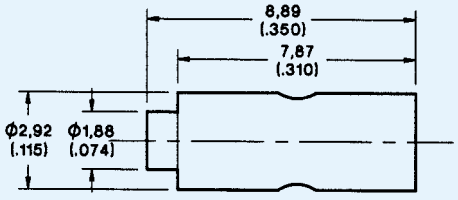
Part Number	Cable Number
052-943-3705310	MIL-C-17/151



Assembly Instruction AI-762 (Page 127)

Plug, Slide-on, Direct Solder

Part Number	Cable Number
052-946-3705310	MIL-C-17/151



Assembly Instruction AI-763 (Page 127)

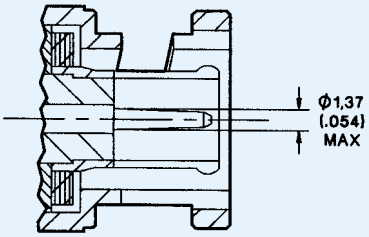
Introduction

This totally new termination technique provides a high pressure, gas tight center conductor joint of exceptional mechanical integrity, without crimping the center contact. The QT BNC is a pre-assembled connector with an integral center contact and rear crimp ferrule. This connector may be terminated onto cable in under 20 seconds, significantly reducing installation costs. With only two parts to handle, the assembly is simple and has no loose contact to drop or lose. The plastic rear cap on the connector body is color coded for easy identification of cable type.

The optional Assembly Tool allows even faster and easier connector assembly. In one squeeze of the tool handles the center contact is terminated to the center conductor and the rear ferrule is crimped at the same time.

The 75 Ω QT BNC is available for use with popular cables used in telecommunication and broadcast systems.

Mating Interface



PLUG

Dimensions are shown in mm (inch)
Dimensions subject to change

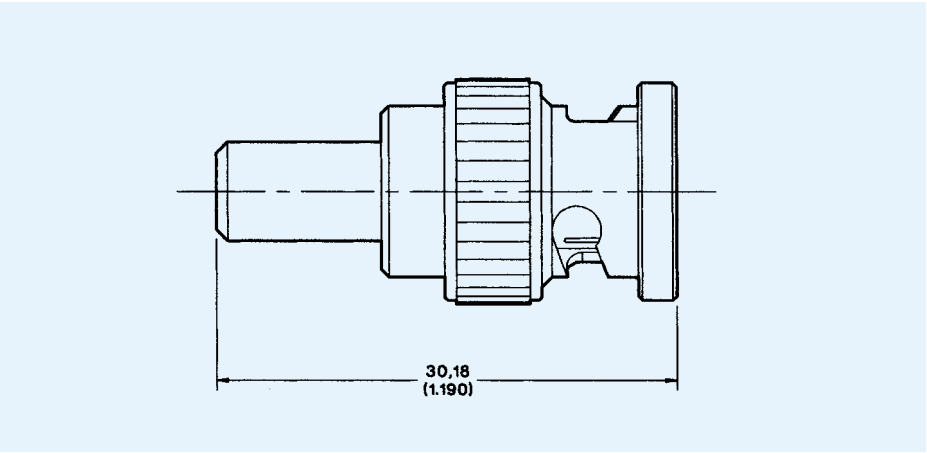
Specifications

ELECTRICAL	Impedance	75 Ω nominal
	Frequency Range	DC to 2.0 GHz
	Voltage Rating	At sea level = 500 Vrms.
	Insulation Resistance	5000 MΩ minimum
	Contact Resistance	Outer contact = 1.0 mΩ maximum Braid to body = 1.0 mΩ maximum
	Voltage Standing Wave Ratio (VSWR)	DC - 1 GHz: 1.2 maximum. 1 - 2 GHz: 1.3 maximum
	Contact Current Rating	1.5 A dc maximum
	Insertion Loss	0.2 dB maximum @ 2 GHz
	RF Leakage	−60 dB typical up to 2 GHz
	Dielectric Withstanding Voltage (DWV)	1500 Vrms @ sea level
	Corona Level	375 Vrms minimum @ 21 km (70k feet)
	Termination Resistance (QT centre contact)	3 mΩ maximum (excluding pole resistance)
MECHANICAL	Insertion Force	22.3 N (5 lbs.) maximum
	Coupling Mechanism Retention	445 N (100 lbs.) minimum
	Contact/Insulator Retention	22.3 N (5 lbs.) minimum axial force
	Materials	Body: Phosphor bronze. Contact: Beryllium copper. Insulators: Polymers rated to UL94VO
	Finish/Plating	Ferrule: Annealed copper alloy. Center contact: Gold plated. Other metal parts nickel plated.
ENVIRONMENTAL	Temperature Rating	−40°C to 85°C
	Vibration	(a) Frequency range from 10 Hz to 500 Hz. (b) Displacement: 0.75 (.029) (c) Acceleration: 98 m/S² (d) Duration: 6 hours
	Shock	490 m/S² for 11 mS
	Bump	4000 total at 390 m/S²
GENERAL	Connector Durability	200 matings minimum
	Cable Retention Force	Cable / Axial Force / Torque M17/29-RG59/U / 133 N (30 lbs.) minimum / 0.9 Nm (8.0 in. lbs.) 734 type / 133 N (30 lbs.) minimum / 0.9 Nm (8.0 in. lbs.) 735A type / 45 N (10 lbs.) minimum / 0.45 Nm (4.0 in. lbs.) 1694A / 133 N (30 lbs.) minimum / 0.9 Nm (8.0 in. lbs.)

QT BNC Plug

Straight Crimp Plug

Part Number	Cap Color	Cable Number
W58-124-9019C90	Red	735A
W58-124-9029C90	Dk. Blue	734
W58-124-9039C90	Lt. Blue	M17/29-RG59/U
W58-124-9049C90	Black	1694A



Assembly Instruction BBAI-1243 (Page 139)

Introduction

ITT Cannon's Between Series Adaptors are widely used for high efficiency transitions between various types of r.f. coaxial connectors. They are used for connecting test equipment to systems employing a different type connector, or they are used as a component in electronic equipment where it is desirable to have one type of connector for external connections and another type for internal connections.

All between series adaptors are designed for lowest VSWR characteristics up to the frequency limits of the connector types involved. All popular types of miniature, sub-miniature and micro-miniature designs are available.

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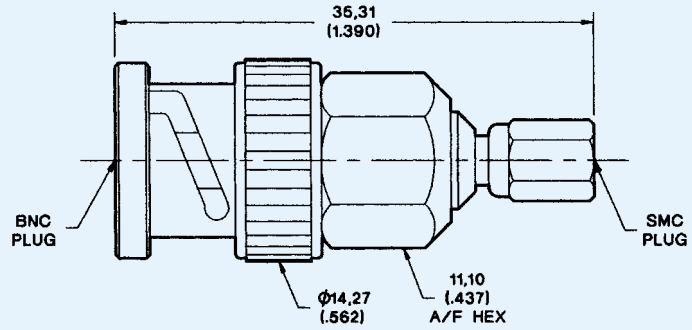
SMB / SMC to 50 Ω BNC	Pages 93 - 94
SMB / SMC to Precision TNC	Page 95
SMA to SMB / SMC	Pages 95 - 97
SMA to BNC	Pages 97 - 98
SMA to Precision TNC	Page 99
SMA to SSMB / SSMC	Page 99
SMA to Precision N	Pages 100 - 101
SMA to SMS	Page 102
SMA to SIS®	Pages 102 - 103
SMA to SSIS®	Pages 103 - 104

Dimensions are shown in mm (inch)
Dimensions subject to change

SMB / SMC to 50 Ω BNC

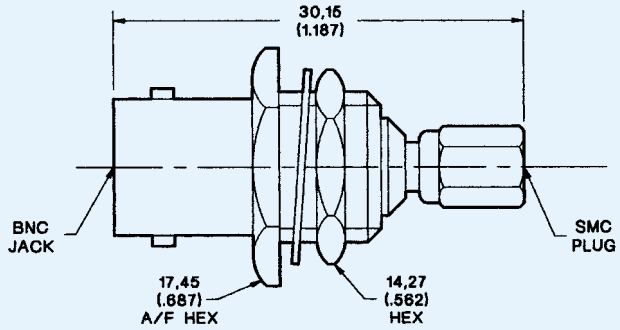
BNC Plug to SMC Plug

Part Number
050-073-6800220



BNC Jack to SMC Bulkhead Plug

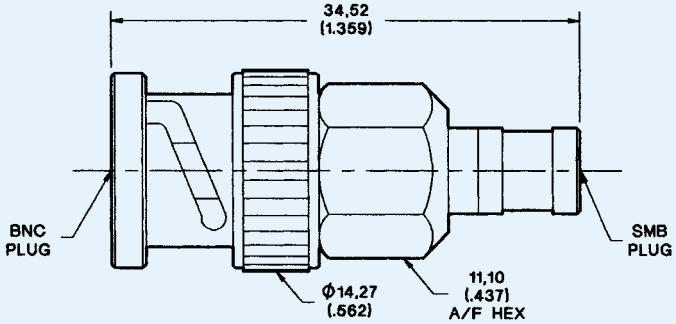
Part Number
050-077-6801220



Mounting Plan Y (Page 109). Panel Thickness 3,18 (.125) max.

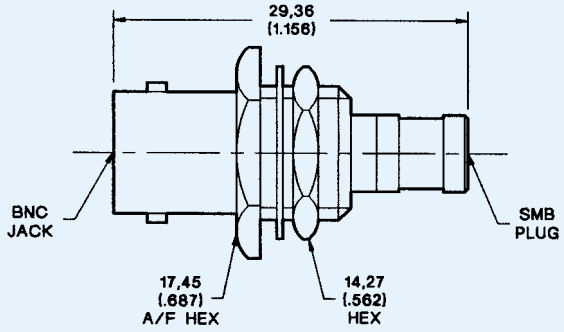
BNC Plug to SMB Plug

Part Number
051-073-6800220



BNC Jack to SMB Bulkhead Plug

Part Number
051-077-6801220

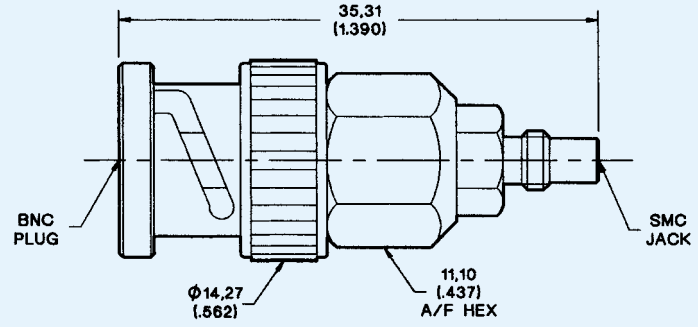


Mounting Plan Y (Page 109). Panel Thickness 3,18 (.125) max.

SMB / SMC to 50 Ω BNC

BNC Plug to SMC Jack

Part Number
050-074-6800220



BNC Jack to SMC Bulkhead Jack

Part Number
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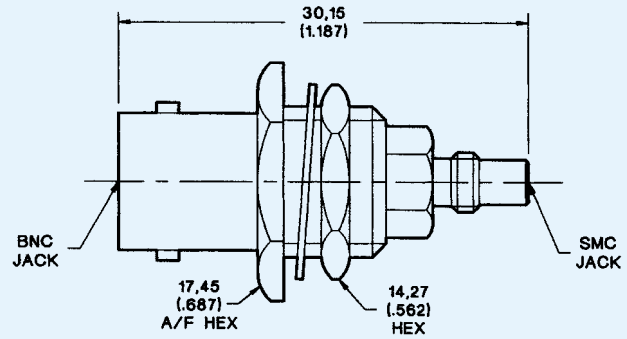
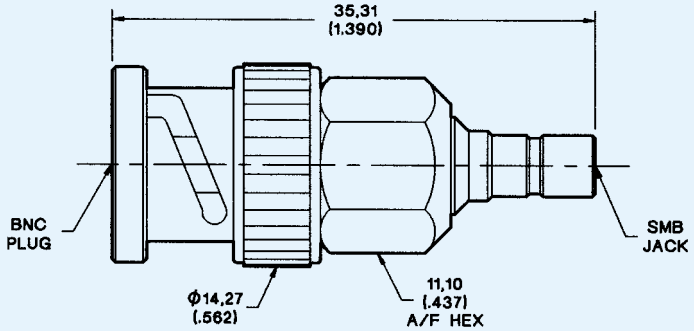


Mounting Plan Y (Page 109). Panel Thickness 3,18 (.125) max.

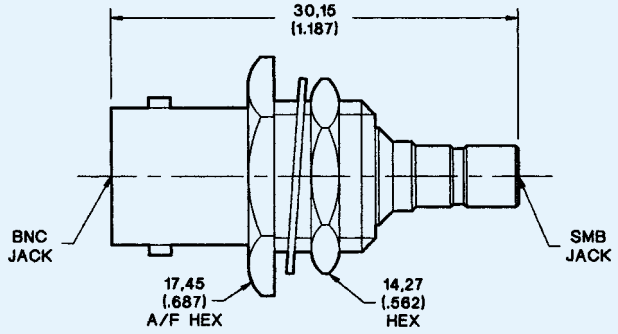
BNC Plug to SMB Jack

Part Number
051-074-6800220



BNC Jack to SMB Bulkhead Jack

Part Number
051-075-6801220

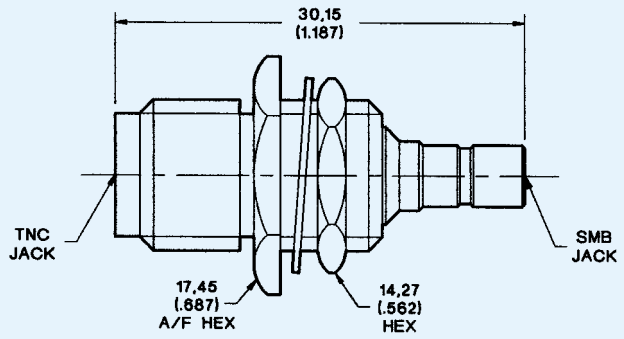


Mounting Plan Y (Page 109). Panel Thickness 3,18 (.125) max.

SMB / SMC to Precision TNC

TNC Jack to SMB Bulkhead Jack

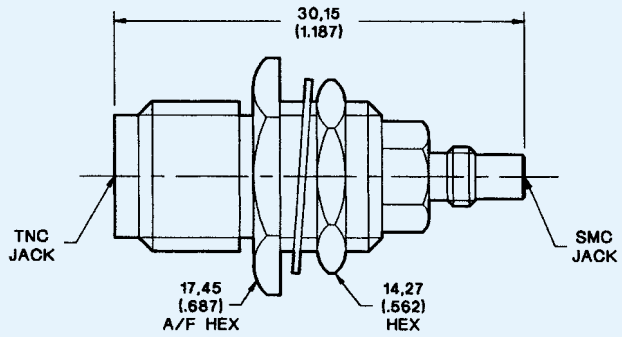
Part Number
051-075-6901220



Mounting Plan Y (Page 109). Panel Thickness 3,18 (.125) max.

TNC Jack to SMC Bulkhead Jack

Part Number
050-075-6901220

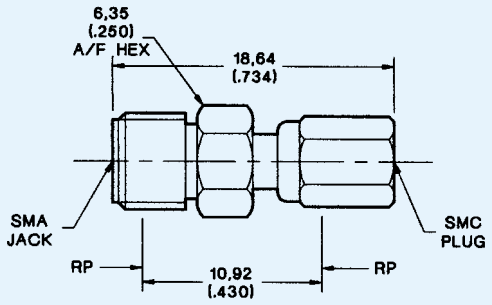


Mounting Plan Y (Page 109). Panel Thickness 3,18 (.125) max.

SMA to SMB / SMC

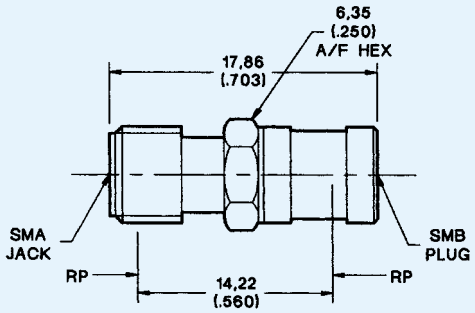
SMA Jack to SMC Plug

Part Number
050-074-6201310



SMA Jack to SMB Plug

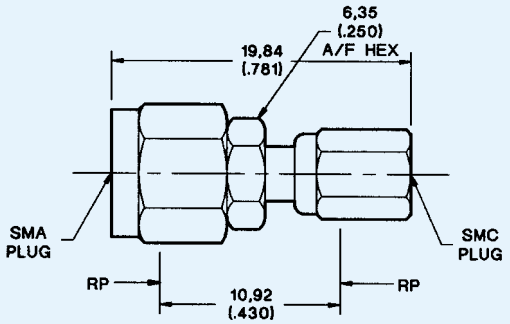
Part Number
050-674-6302310



SMA to SMB / SMC

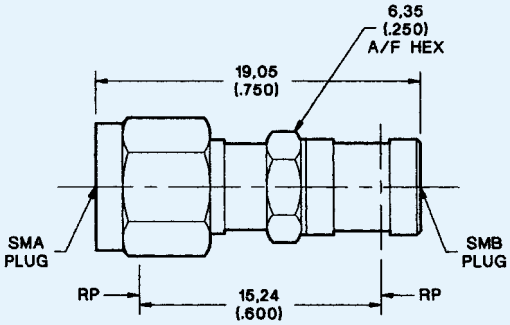
SMA Plug to SMC Plug

Part Number
050-073-6200310



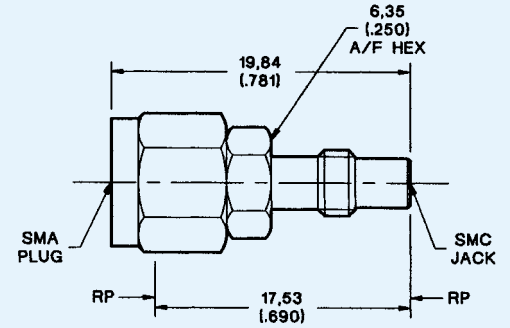
SMA Plug to SMB Plug

Part Number
050-673-6302310



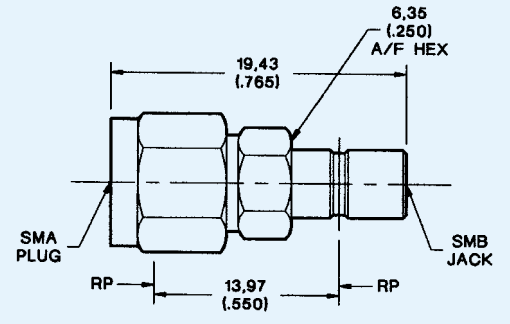
SMA Plug to SMC Jack

Part Number
050-074-6200310



SMA Plug to SMB Jack

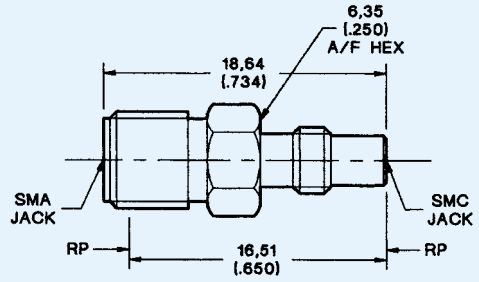
Part Number
050-674-6303310



SMA to SMB / SMC

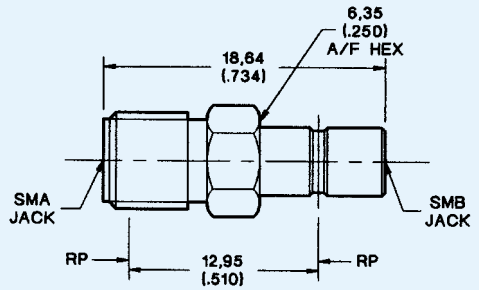
SMA Jack to SMC Jack

Part Number
050-072-6201310



SMA Jack to SMB Jack

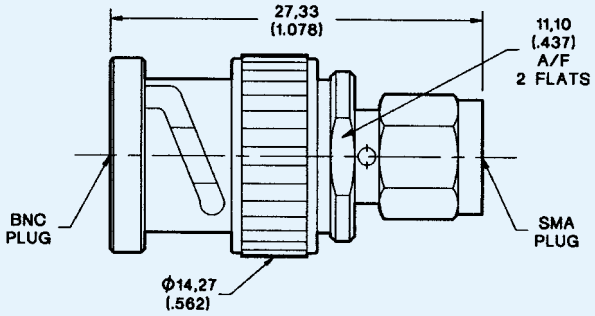
Part Number
050-672-6303310



SMA to BNC

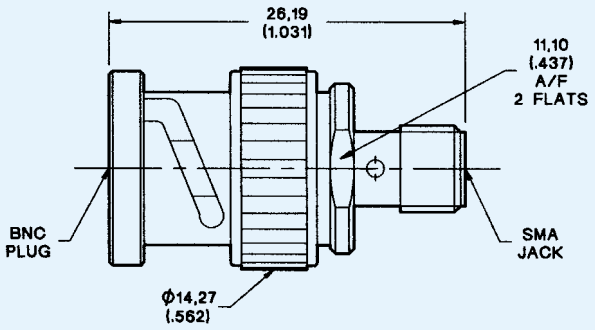
BNC Plug to SMA Plug

Part Number
050-673-6800890



BNC Plug to SMA Jack

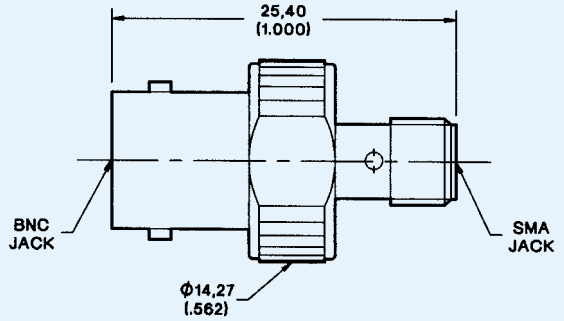
Part Number
050-674-6800890



SMA to BNC

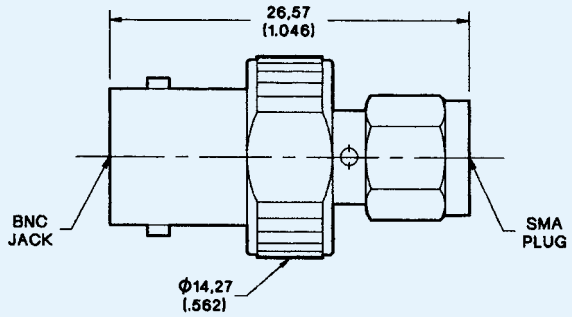
BNC Jack to SMA Jack

Part Number
050-672-6801890



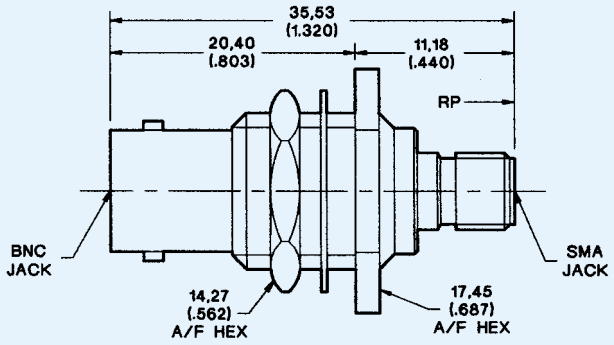
BNC Jack to SMA Plug

Part Number
050-674-6801890



BNC Bulkhead Jack to SMA Jack

Part Number
050-675-6801890



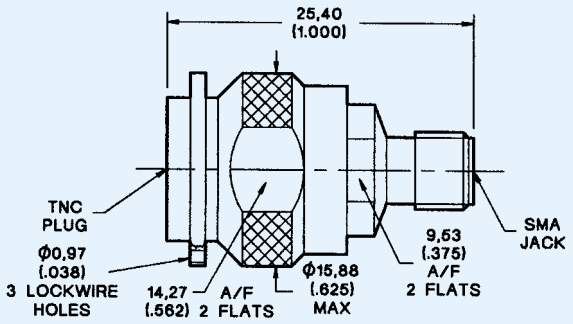
Mounting Plan Z (Page 109). Panel Thickness 3,18 (.125) max.

SMA to Precision TNC

TNC Plug to SMA Jack

Part Number
050-674-6900890

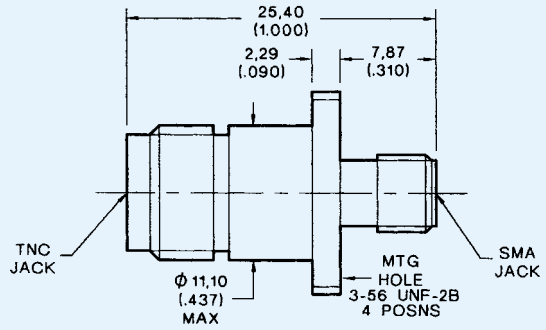
VSWR:
1.04 + .008f (GHz) DC - 12.4 GHz
1.08 + .010f (GHz) 12.4 - 18 GHz



TNC Jack to SMA Panel Mount Jack

Part Number
050-675-6901890

VSWR:
1.04 + .008f (GHz) DC - 12.4 GHz
1.08 + .010f (GHz) 12.4 - 18 GHz

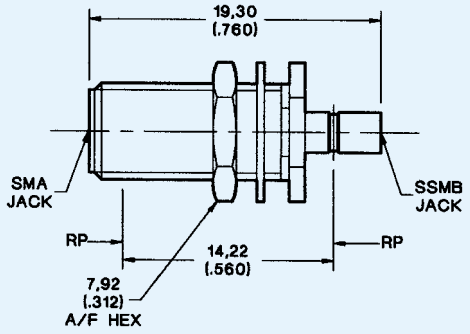


Panel Thickness 4,75 (.187) max.

SMA to SSMB / SSMC

SMA Bulkhead Jack to SSMB Jack

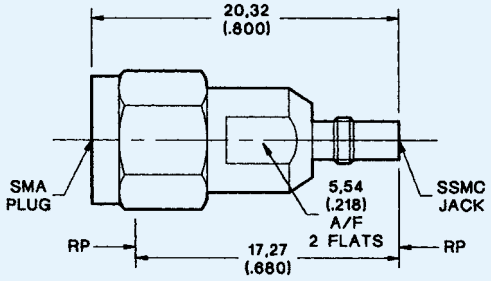
Part Number
051-475-6201220



Mounting Plan W (Page 109). Panel Thickness 3,18 (.125) max.

SMA Plug to SSMC Jack

Part Number
050-474-6200220

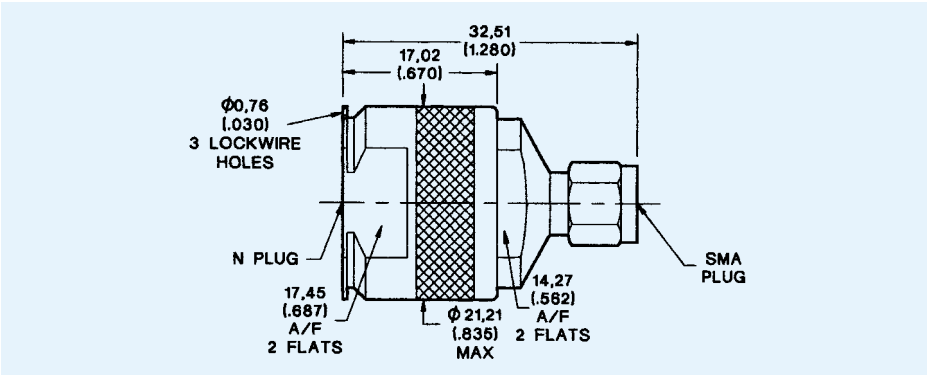


SMA to Precision N

N Plug to SMA Plug

Part Number
050-673-6700890

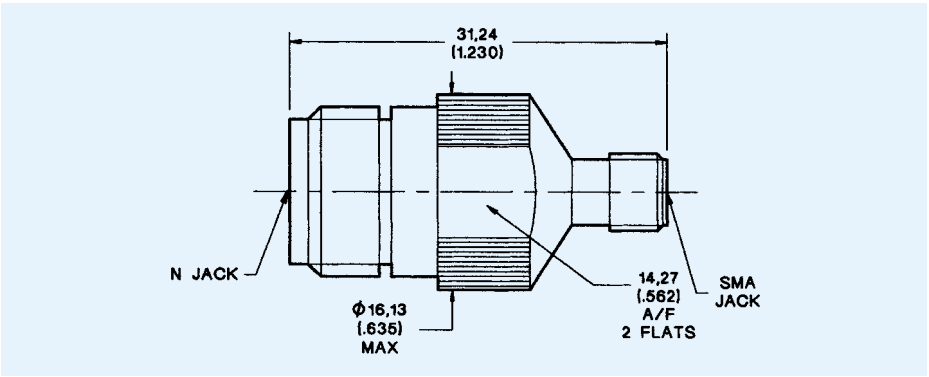
VSWR:
1.10 + .01f (GHz) DC - 12.4 GHz
1.10 + .016f (GHz) 12.4 - 18 GHz



N Jack to SMA Jack

Part Number
050-672-6701890

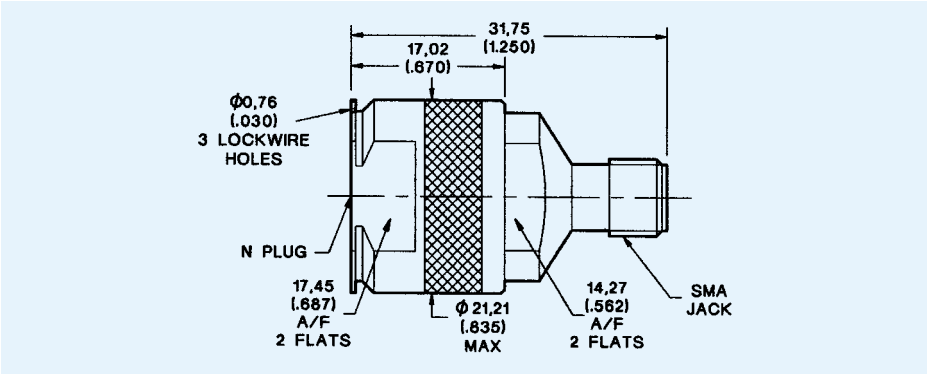
VSWR
1.06 + .005f (GHz) DC - 12.4 GHz
1.06 + .010f (GHz) 12.4 - 18 GHz



N Plug to SMA Jack

Part Number
050-674-6700890

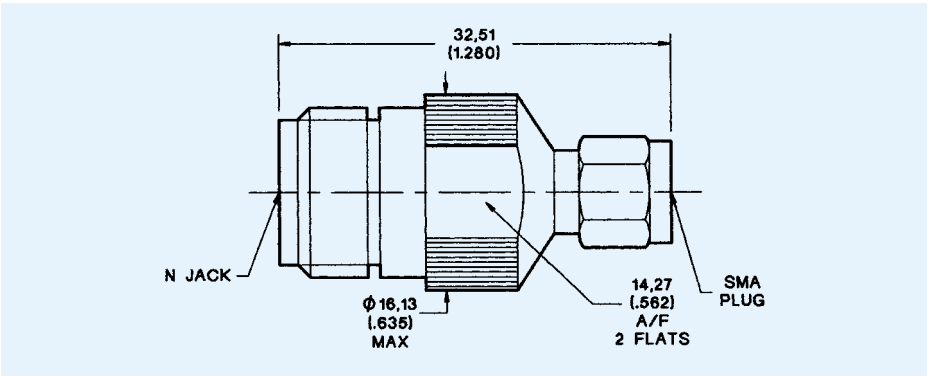
VSWR
1.10 + .01f (GHz) DC - 12.4 GHz
1.10 + .016f (GHz) 12.4 - 18 GHz



N Jack to SMA Plug

Part Number
050-674-6701890

VSWR
1.04 + .005f (GHz) DC - 12.4 GHz
1.04 + .010f (GHz) 12.4 - 18 GHz

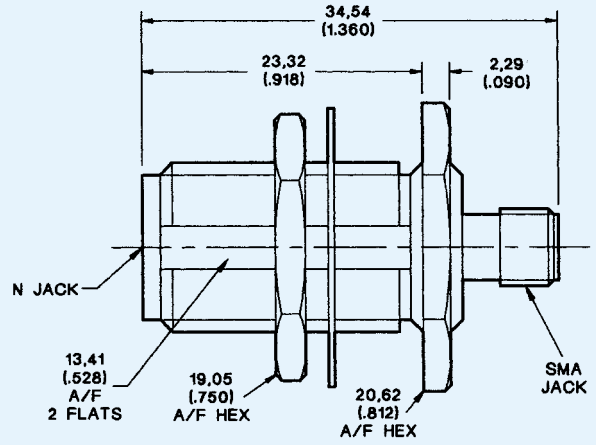


SMA to Precision N

N Bulkhead Jack to SMA Jack

Part Number
050-675-6705890

VSWR:
1.06 + .005f (GHz) DC - 12.4 GHz
1.06 + .010f (GHz) 12.4 - 18 GHz

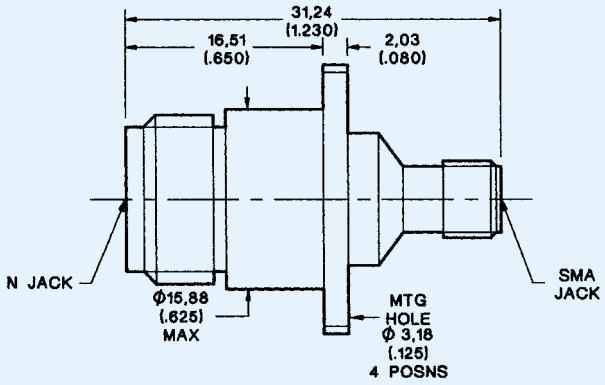


Mounting Plan AA (Page 109). Panel Thickness 6,35 (.250) max.

N Jack to SMA Panel Mount Jack

Part Number
050-675-6701890

VSWR:
1.06 + .005f (GHz) DC - 12.4 GHz
1.06 + .010f (GHz) 12.4 - 18 GHz

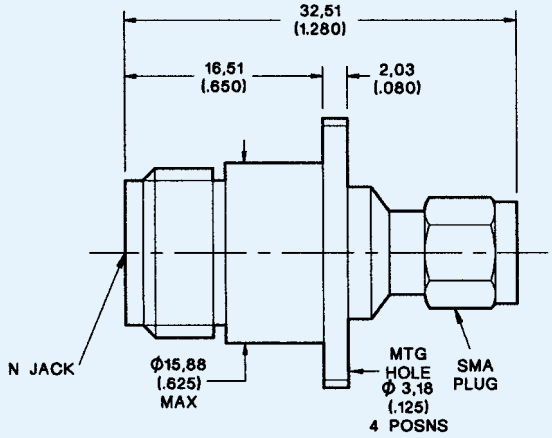


Panel Thickness 4,75 (.187) max.

N Jack to SMA Panel Mount Plug

Part Number
050-677-6701890

VSWR:
1.04 + .005f (GHz) DC - 12.4 GHz
1.04 + .010f (GHz) 12.4 - 18 GHz

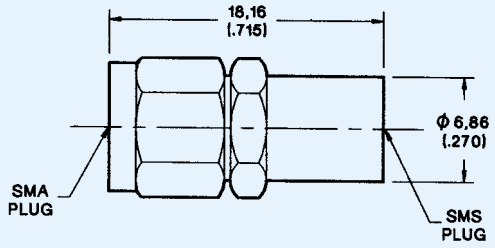


Panel Thickness 4,75 (.187) max.

SMA to SMS

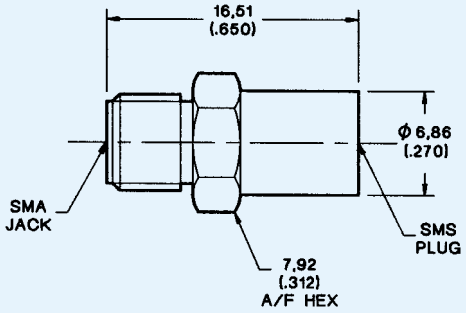
SMA Plug to SMS Plug

Part Number
050-673-6204890



SMA Jack to SMS Plug

Part Number
050-674-6204890



SMA Jack to SMS Jack

Part Number
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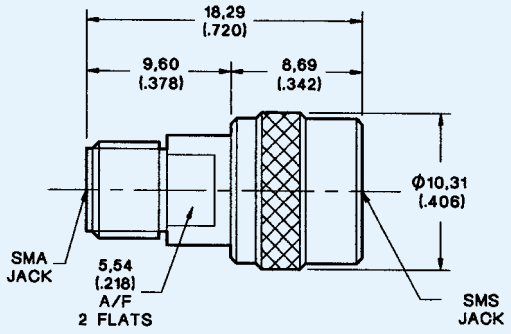
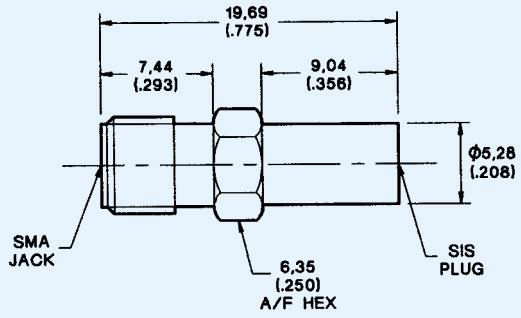


SMA to SIS®

SMA Jack to SIS Plug

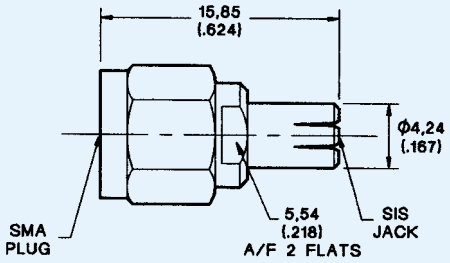
Part Number
050-674-6207890



SMA to SIS®

SMA Plug to SIS Jack

Part Number
050-674-6208220



SMA Jack to SIS Jack

Part Number
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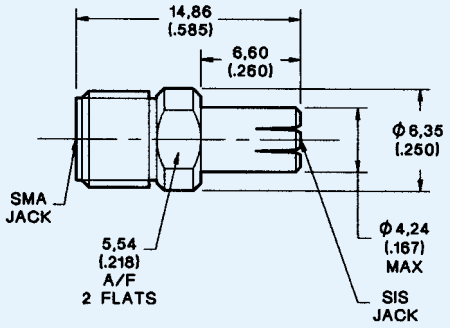

SMA to SSIS®

SMA Jack to SSIS Plug

Part Number
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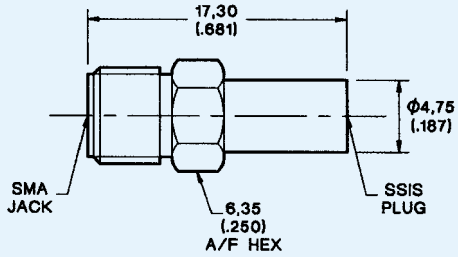

SMA Jack to SSIS Jack

Part Number
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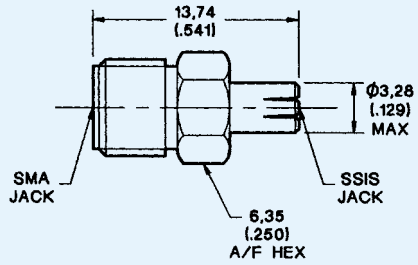
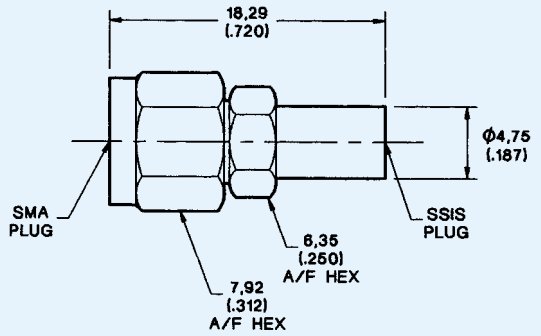


SMA to SSIS®

SMA Plug to SSIS Plug

Part Number
050-673-6210890



Introduction

ITT Cannon's Sealflex 2 microwave cable assemblies are designed for applications requiring consistent microwave performance through to 18 GHz and may be used with minimal degradation to 26 GHz, with SMA connectors.

All connector designs, except BNC, exhibit 'mode free' characteristics to 18 GHz, thereby allowing low VSWR to be specified without 'spikes' being present in the upper frequency spectrum.

Each assembly is 100% tested for VSWR and insertion loss and test plots are supplied with each item.

Sealflex 2 assemblies have been adopted for use in various avionic systems, missiles, military ground and shipborne applications as well as commercial communications equipment; in fact, anywhere where cost effective high performance and reliability is paramount.

Specification

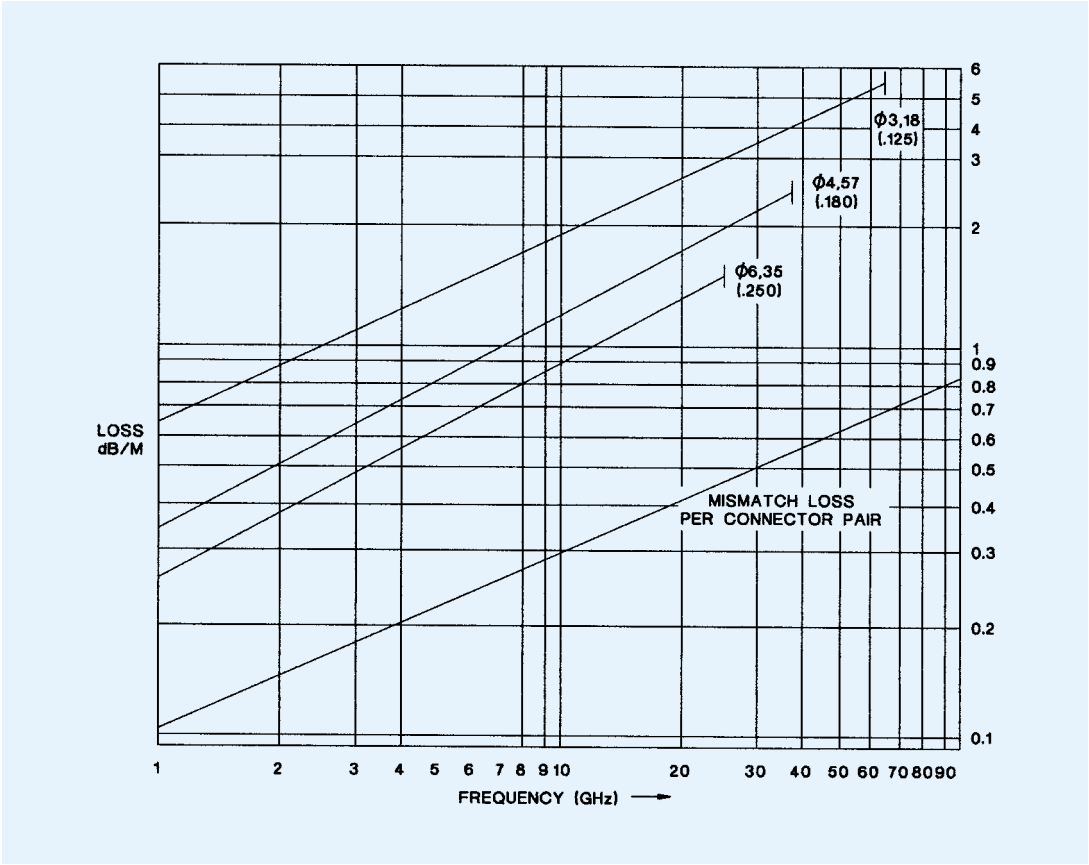
ELECTRICAL	Impedance	50 Ω nominal		
	Voltage Standing Wave Ratio (VSWR)	1.25 (2 - 12.4 GHz). 1.35 (12.4 - 18 GHz)		
	Attenuation	See graph on next page		
	Shielding RF	−90 dB		
MECHANICAL	Connector Retention	137 N (30.9 lbs.) minimum		
	Connector/Cable Torque	1.7 Nm (15 in. lbs.) minimum		
	Minimum Bend Radii	Cable Diameter	Static	Flexing
		3,18 (.125)	13,00 (.511)	25,00 (.984)
		4,57 (.180)	19,00 (.748)	38,00 (1.496)
		6,35 (.250)	25,00 (.984)	51,00 (2.007)
ENVIRONMENTAL	Operating Temperature	−65° C to 165° C		
	Moisture Resistance	MIL-STD-202, Method 106		
	Vibration	MIL-STD-202, Method 204(C)		
	Shock	MIL-E-5272, Para 4.15.5.1		
	Thermal Shock	MIL-STD-202, Method 107(C)		
	Corrosion	MIL-STD-202, Method 101(B)		
	Solvent Resistance	7 days at 200 C, JP6 (MIL-J-2658) and hydraulic fluid (MIL-H-5806)		

NOTES
Tighter specifications to special quotation.
Sealflex 2 assemblies are manufactured under licence to Times Fiber Communications

THIS PRODUCT IS NOT AVAILABLE IN NORTH AMERICA THROUGH ITT CANNON

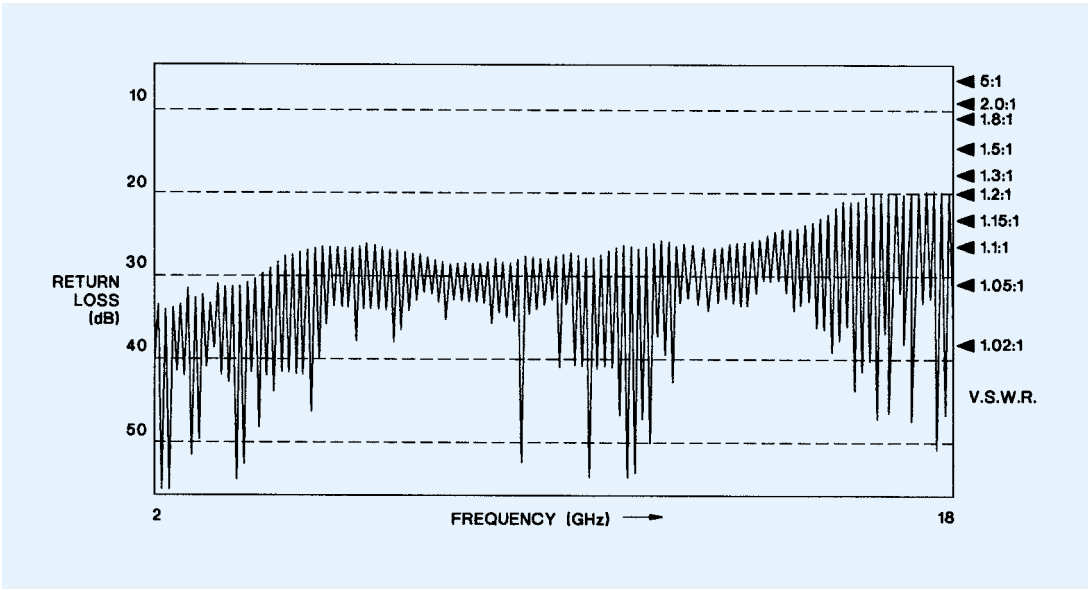
Specification

Attenuation



Cable Maximum Frequency (f_c):	∅ 3,18 (.125) = 65.3 GHz
(Single mode operaton)	∅ 4,57 (.180) = 36.8 GHz
	∅ 6,35 (.250) = 23.7 GHz

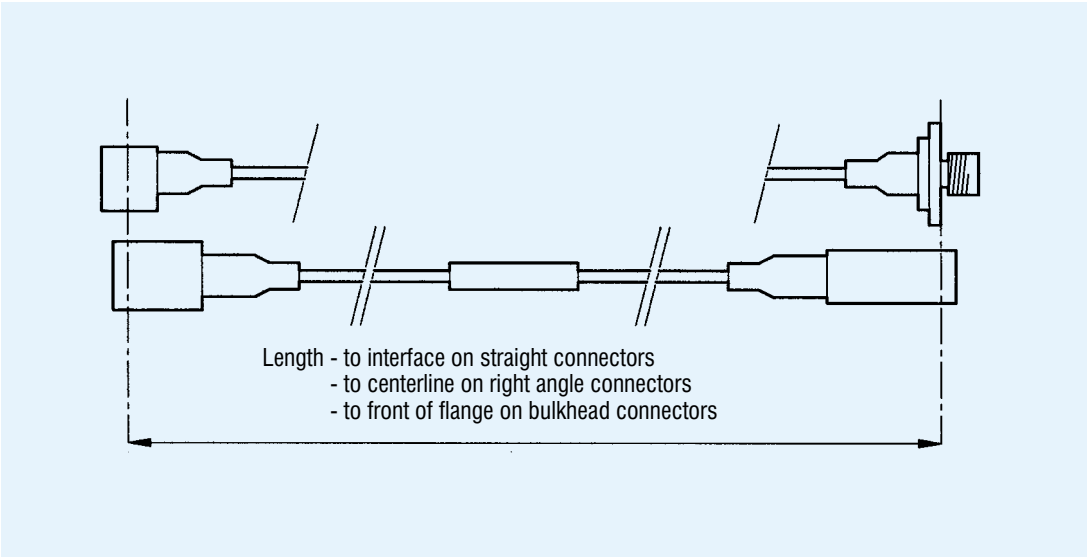
Typical Return Loss (VSWR). Part Number 065-9AA-1000000



ITT Cannon

Dimensions are shown in mm (inch)
Dimensions subject to change

Microwave Cable Assemblies



Standard Tolerances:

Length up to 1m (39.370)	-0 + 10,00 (.393)
1m (39.370) to 3m (118.00)	-0 + 20,00 (.787)
3m (118.00) to 15m (1771.65)	-0 + 30,00 (1.181)

Ordering Information

Connector Type	Code
SMA Plug	A
SMA Right Angle Plug	B
SMA Bulkhead Jack, 'D' Hole	C
SMA Bulkhead Jack, 4 Hole Flange	D
SMS Bulkhead Jack	F
SMS Bulkhead Plug, Float Mounted	G
BNC Plug	H
TNC Plug	J
TNC Right Angle Plug	K
TNC Bulkhead Jack, 'D' Hole	L
TNC Bulkhead Jack, 4 Hole Flange	M
TNC Free Jack	N
K Male	P
N Plug	S
N Right Angle Plug	T
N Bulkhead Jack, 'D' Hole	U
N Free Jack	V
N Jack, 4 Hole Flange	W
APC-7	Z

Cable Size	Code
4,57 (.180)	0
3,18 (.125)	1
6,35 (.250)	2

Part Number Explanation

0 6 5 - 9 X X - X X X X X 0 0

- Microwave Cable Assembly
- Connector 1 Code
- Connector 2 Code
- Length (mm)
  For lengths of 10 m and over contact Sales Department
- 0 - Standard
- 0 - Standard
- 1 - Armoured
- Sealflex 2 Cable Size Code

Example

065-9BL-0720000 Sealflex 2, 4,57 (.180) Assembly with 1 x SMA Right Angle Plug and 1 x TNC Bulkhead Jack 'D' Hole 720,00 (28.346) between center line of SMA and front of flange of TNC, -0 + 10,00 (.393)

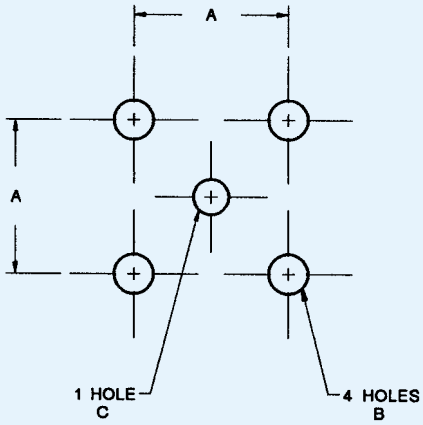
Stock Assemblies

The following part numbers are held in stock:

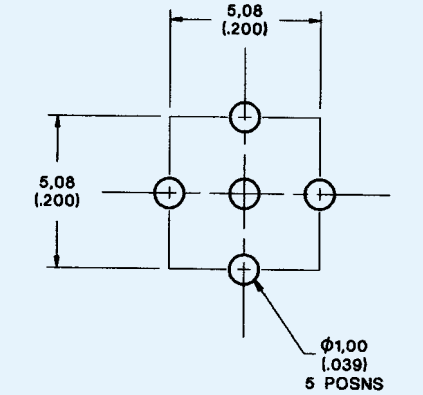
Length	2 x SMA Plug	SMA Plug/N Plug	2 x N Plug
300,00 (11.811)	065-9AA-0300000	–	–
500,00 (19.685)	065-9AA-0500000	065-9AS-0500000	065-9SS-0500000
750,00 (29.528)	065-9AA-0750000	–	–
1000,00 (39.370)	065-9AA-1000000	065-9AS-1000000	065-9SS-1000000
1500,00 (59.055)	065-9AA-1500000	–	065-9SS-1500000
2000,00 (78.740)	065-9AA-2000000	065-9AS-2000000	065-9SS-2000000
3000,00 (118.110)	065-9AA-3000000	–	065-9SS-3000000

Recommended Mounting Hole Dimensions

Plan	A	B (min.) 4 positions	C (min.) 1 position
A	5,08 (.200)	Ø 1,70/1,85 (.067/.080)	Ø 1,17/1,35 (.046/.053)
B	5,08 (.200)	Ø 1,30 (.051)	Ø 1,30 (.051)
C	2,54 (.100)	Ø 0,97 (.038)	Ø 0,91 (.036)
D	5,08 (.200)	Ø 1,70 (.067)	Ø 1,70 (.067)
E	5,60 (.220)	Ø 1,60 (.063)	Ø 1,30 (.051)
F	5,08 (.200)	Ø 1,50 (.059)	Ø 1,10 (.043)
G	5,08 (.200)	Ø 1,00 (.039)	Ø 1,00 (.039)

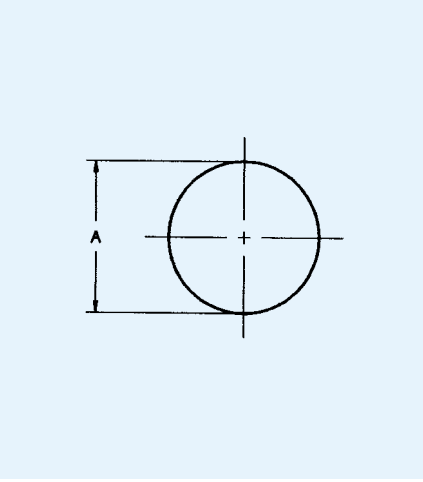


Plan A - G



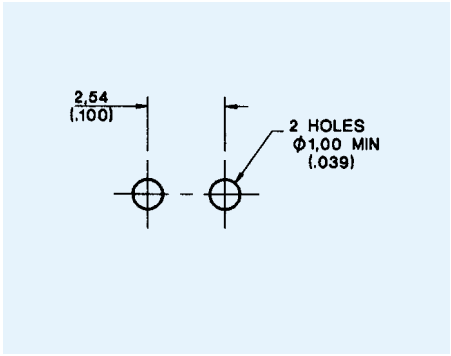
Plan H

Plan	Thread Size	A min.	A max.
I	N/A	5,44 (.214)	5,49 (.216)
J	N/A	5,67 (.223)	5,80 (.228)
K	N/A	6,16 (.243)	6,33 (.249)
L	N/A	6,50 (.256)	6,55 (.258)
M	9/32-40, UNS-2A	7,14 (.281)	7,24 (.285)
N	5/16-32, UNEF-2A	7,94 (.313)	8,04 (.317)
O	N/A	9,91 (.390)	9,96 (.392)
P	M9	9,20 (.362)	9,40 (.370)
Q	N/A	9,15 (.360)	9,35 (.368)

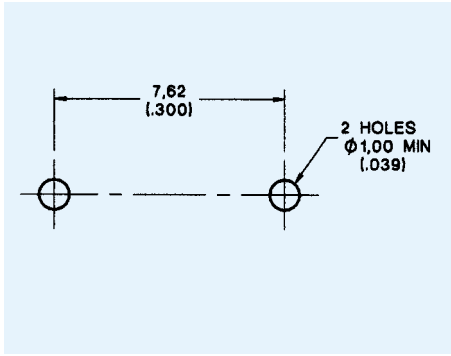


Plan I - Q

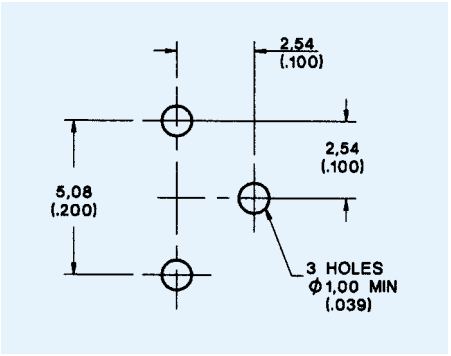
Recommended Mounting Hole Dimensions



Plan R

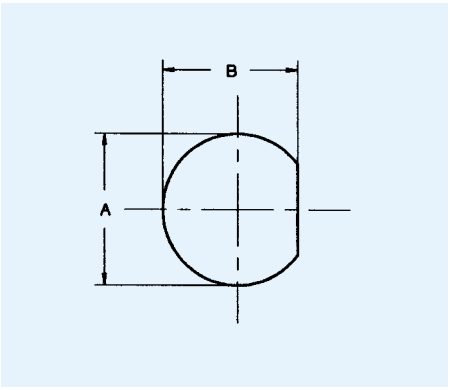


Plan S



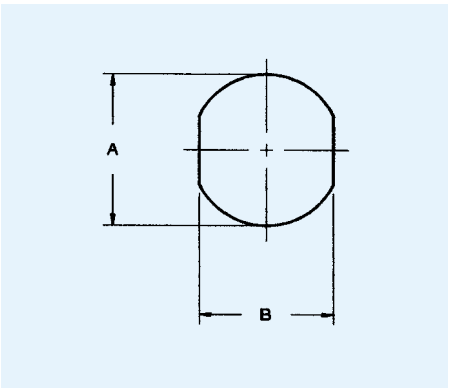
Plan T

Plan	Thread Size	A $^{+0,13\ (.005)}_{-0,00\ (.000)}$	B $^{+0,13\ (.005)}_{-0,00\ (.000)}$
U	6-40 UNF-2A	3,56 (.140)	3,20 (.126)
V	10-32 UNF-2A	4,95 (.195)	4,50 (.177)
W	1/4-36 UNS-2A	6,73 (.265)	5,92 (.233)
X	5/16-32 UNEF-2A	7,94 (.313)	7,40 (.291)
Y	7/16-28 UNEF-2A	11,91 (.469)	10,41 (.410)
Z	1/2-28 UNEF-2A	13,08 (.515)	12,19 (.480)
AA	5/8-24 UNEF-2A	16,26 (.640)	15,24 (.600)

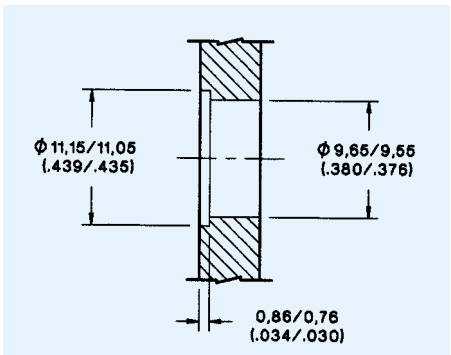


Plan U - AA

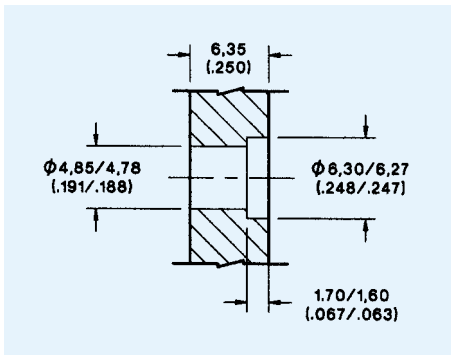
Plan	Thread Size	A $^{+0,10\ (.004)}_{-0,03\ (.001)}$	B $^{+0,10\ (.004)}_{-0,03\ (.001)}$
BB	M9	9,20 (.362)	8,20 (.322)
CC	M5	5,90 (.232)	5,00 (.197)



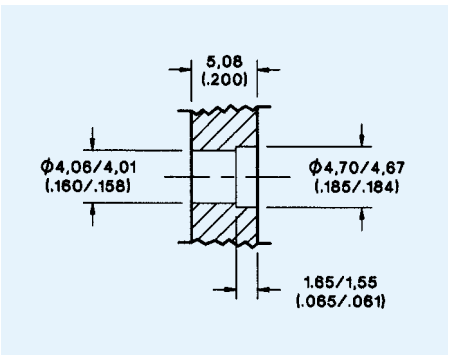
Plan BB-CC



Plan DD

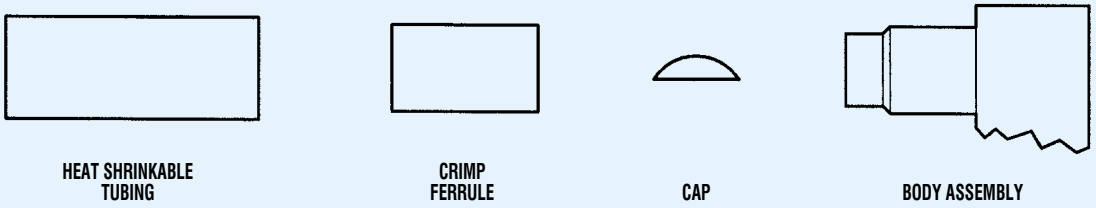


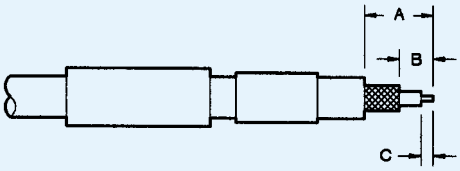
Plan EE



Plan FF

AI-90, AI-237, AI-773 & BBAI-1212 SMA & MCX Right Angle Connectors, Crimp Type for Braided Cable



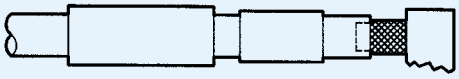


1. Slide ferrule and (if supplied) heat shrinkable tubing on to cable.

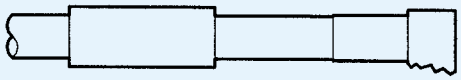
2. Trim cable to dimensions shown.

Assembly Instruction No.	A	B	C
AI-90 & AI-237	11,10 (.437)	5,16 (.203)	1,57 (.062)
AI-773	11,68 (.460)	4,55 (.179)	1,78 (.070)
BBAI-1212	8,50 (.335)	3,00 (.118)	2,00 (.078)

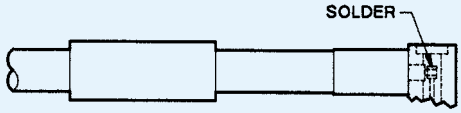
3. Tin center conductor (DO NOT OVER TIN).



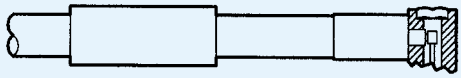
4. Slide body over cable dielectric and under the braid until braid is flush against under-side of body. Ensure center conductor is located in the forked end of the contact.
NOTE: When using cables with inflexible jackets it is permissible to make two 3,17 (.125) longitudinal slits in the outer jacket.



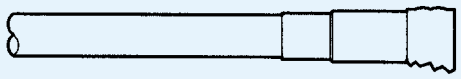
5. Slide ferrule flush against the body and crimp in position using ITT Cannon's Crimp Tool and suitable die set (see table).



6. Using a small soldering iron solder center conductor to contact.
NOTE: The center conductor should not protrude beyond the contact or touch the body. Solder should not protrude beyond the slotted section of the contact.



7. Locate the cap in rear of body and dimple or lightly punch to ensure it is locked in position.

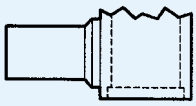


8. Slide heat shrinkable tubing over ferrule flush against body and heat until tubing shrinks down.

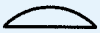
Only common cable retention features are shown in detail. Various body configurations can apply.

Cable	Cable Code	Die Size
RG142/U	9142	5,42 (.213)
RG196/U	9196	2,67 (.105)
RG316/U	9188	3,25 (.128)
RD 316	9399/9875	3,84 (.151)

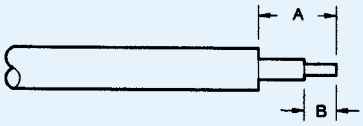
AI-98 SMA Right Angle Connectors, Direct Solder Type for Semi-Rigid Cable



BODY ASSEMBLY

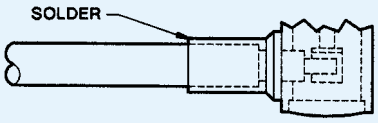


CAP

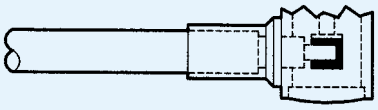


1. Trim cable jacket, dielectric and center conductor to dimensions shown, being careful not to fracture the center conductor. Tin center conductor (DO NOT OVER TIN).

A	B
4,75 ± 0,13 (.187 ± .005)	2,29 ± 0,13 (.097 ± .005)

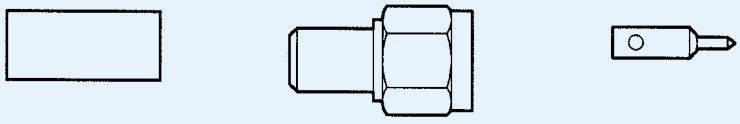


2. Slide cable into body and solder into place.

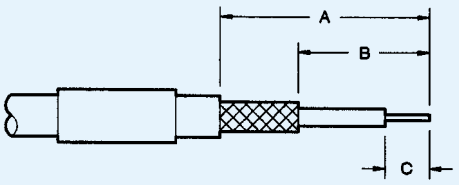


3. Solder center conductor to contact (do not over solder), then locate the cap in rear of body and dimple or lightly punch to ensure it is locked in position.

AI-102, AI-236 & AI-771 SMA Straight Connectors, Crimp Type for Braided Cable

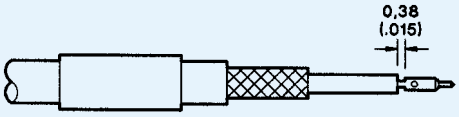


CRIMP FERRULE BODY ASSEMBLY CONTACT



1. Trim cable to dimensions shown being careful not to nick the braid or center conductor. Tin center conductor, (DO NOT OVER TIN) then slip ferrule (and shrink tubing if supplied) over cable.

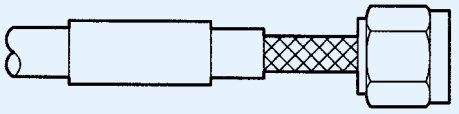
Assembly Instruction No.	A	B	C
AI-102 & AI-236	10,31 (.406)	4,37 (.172)	2,77 (.109)
AI-771	10,62 (.418)	5,16 (.203)	3,56 (.140)



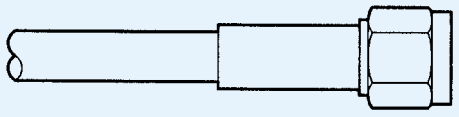
2. Solder center conductor to contact. With AI-771 the contact bottoms on the dielectric. With AI-102 & AI-236 the gap shown is to be maintained.

   Alternatively with AI-771.
   Crimp attachment: Crimp contact to inner conductor using ITT Cannon's Hand Tool P/N 050-000-0155 (Astro tool P/N 615708), setting 3 with positioner P/N 050-000-0156. (Astro turret head P/N 650027), color code per chart.

Cable Type	Colour Code
RG161/U, RG171/U	Red
RG188/U, RG316/U	
RD316	

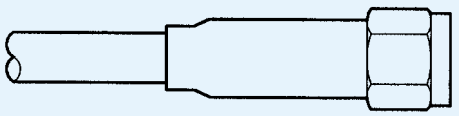


3. Insert trimmed cable into the rear of the body assembly. Tubular body extension will slide under the braid with the rear portion of extension fitting under the jacket as shown.
   NOTE: When using cables with inflexible jackets it is permissible to make two 3,17 (.125) long longitudinal slits in the outer jacket.



4. Slip ferrule flush against the body and crimp in position using ITT Cannon crimp tool and suitable die set (see table).

Cable	Cable Code	Die Size
RG141/U	9141	5,42 (.213)
RG142/U	9142	5,42 (.213)
RG188/U	9188	3,25 (.128)
RG196/U	9196	2,67 (.105)
RD316	9875/9399	3,84 (.151)

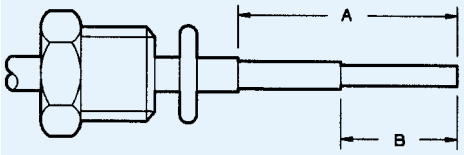


5. Slide heat shrinkable tubing over ferrule and apply heat until tubing shrinks down.

Dimensions are shown in mm (inch)
Dimensions subject to change

AI-106 SMA Straight Connectors, Clamp Type for Braided Cable

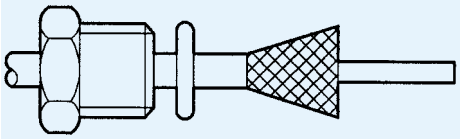
CLAMP NUT '0' RING SLEEVE INSULATOR CONTACT FRONT BODY



1. Slide clamp nut and '0' ring over cable.

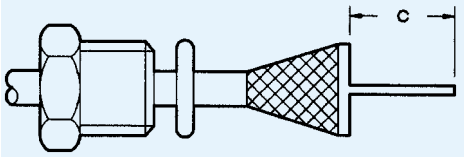
2. Trim cable to dimensions shown being careful not to nick the braid.

A	B	C
6,35 (.250)	4,78 (.188)	3,18 (.125)



3. Thumb braid out radially to expose the cable dielectric.

4. Slide sleeve over dielectric and under braid until sleeve is flush with braid. N.B. When using cables with inflexible jackets it is permissible to make two 3,17 (.125) long longitudinal slits in the outer jacket.

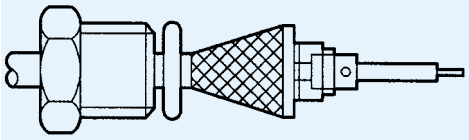


5. Trim braid flush with flange of sleeve.

6. Trim back dielectric to dimension shown.

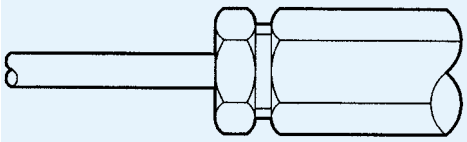
7. Tin center conductor (DO NOT OVER TIN).

8. Fit insulator over center conductor with counterbore in direction shown.



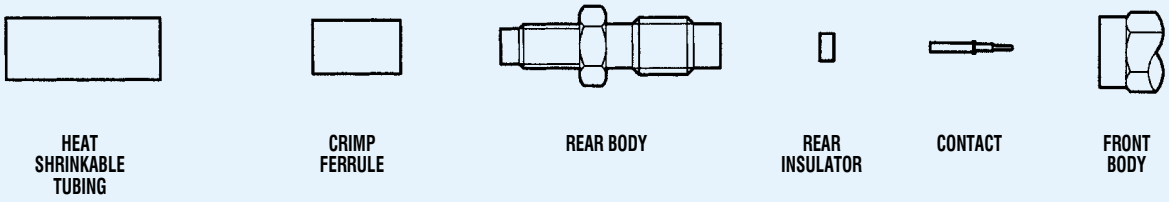
9. Place a small solder preform made from 0,26 - 0,31 (.010 - .012) dia. (28 swg) multi-core solder in rear of contact on center conductor. Heat to make solder connection ensuring shoulder of contact is flush against rear insulator. Do not allow solder to protrude outside spill hole.

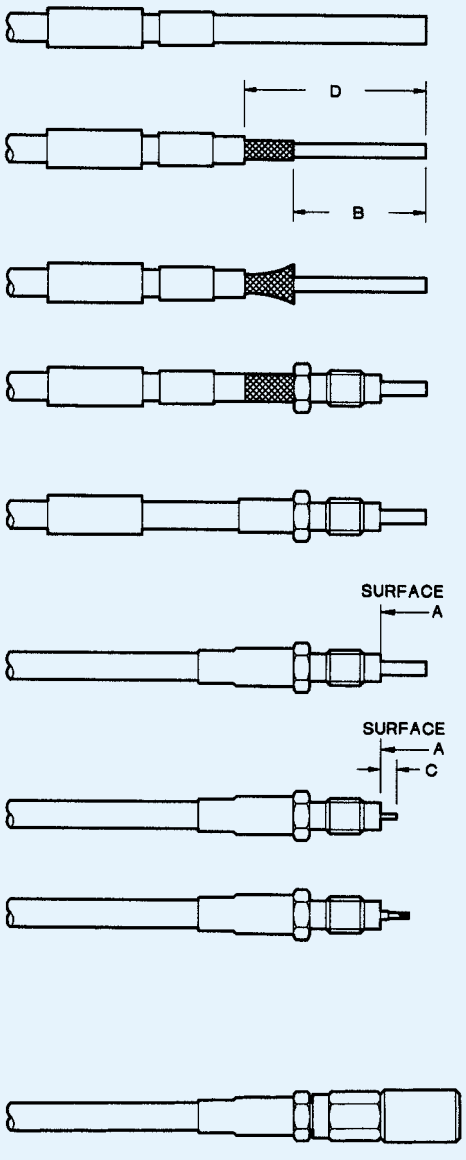
10. Fit front insulator if not part of body.



11. Thread on body and tighten clamp nut to 1.02 Nm (9 in. lbs.).

AI-128 & AI-663 SSMB/SSMC Straight Connectors, Crimp Type for Braided Cable





1. Slide heat shrinkable tubing and ferrule on to cable.
2. Trim cable to dimensions shown.

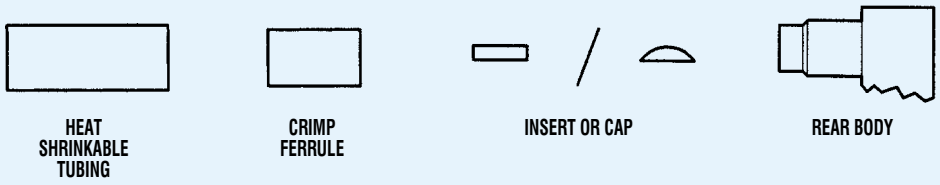
Assembly Instruction No.	B	C	D
AI-663	6,86 (.270)	2,29 (.090)	10,41 (.410)
AI-128 - For center conductors Ø 0,51 (.020)	6,76 (.266)	2,29 (.090)	9,53 (.375)
AI-128 - For all other conductor sizes	7,54 (.297)	3,05 (.120)	10,31 (.406)

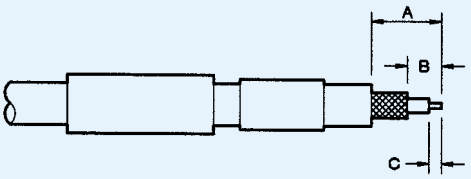
3. Slide rear body over dielectric and under the braid until braid is flush with flange.
   N.B. When using cable with inflexible jackets it is permissible to make two 3,00 (.118) long longitudinal slits in the outer jacket.
4. Slide ferrule over exposed braid up to hex. flange.
5. Crimp using ITT Cannon Crimp Tool and suitable die set (see table). Ensure ferrule is held close to hex. flange.
6. Slide heat shrinkable tubing over crimp and heat shrink into place using hot air gun. Air temperature should be approximately 125°C.
7. Trim dielectric flush with surface 'A' on body using a sharp knife. Take care not to nick center conductor.
8. Trim center conductor as shown.
9. Tin center conductor (do not allow solder to touch end of body or dielectric).
10. Place a small solder preform made from 0,26 - 0,31 (.010 - .012) dia. (28 swg) multi-core solder in rear of contact.
11. Place rear insulator over center conductor. When insulator has counterbore, the contact fits into the counterbore.
12. Assemble contact onto center conductor, heat to make solder connection. Do not allow solder to protrude outside spill hole.
13. Solder should be visible at inspection hole, if excess solder runs from inspection hole, remove with sharp blade taking care not to damage plating.
14. Screw on the front body and tighten to a torque of 0.14 Nm (20 in. ozs.).

    Only common cable retention features are shown in detail - various body configurations can apply.

Cable Type	Cable Code	Die Size
RG196/U	3196	2,67 (.105)
RG316/U	3188	3,25 (.128)
RD316	3875	3,84 (.151)

AI-129, AI-286 & AI-696 SSMB/SSMC Right Angle Connectors, Crimp Type for Braided Cable

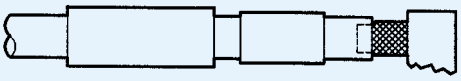




1. Slide heat shrinkable tubing and ferrule on to cable.

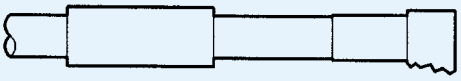
2. Trim cable to dimensions shown.

Assembly Instruction No.	A	B	C
AI-129	5,56 (.219)	2,77 (.109)	1,19 (.047)
AI-286	6,35 (.250)	2,77 (.109)	0,79 (.031)
AI-696	6,22 (.245)	2,54 (.100)	1,14 (.045)

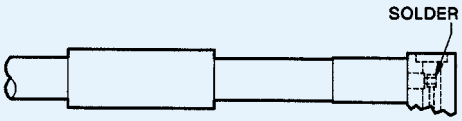


3. Tin center conductor (DO NOT OVER TIN).

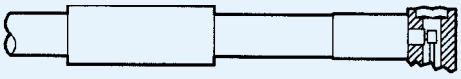
4. Slide body over cable dielectric and under the braid until braid is flush against under-side of rear body. Ensure center conductor is located in the forked end of the contact.
NOTE. When using cables with inflexible jackets it is permissible to make two 3,00 (.118) longitudinal slits in the outer jacket.



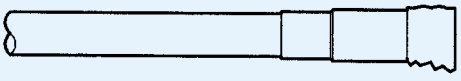
5. Slide ferrule flush against the body and crimp in position using ITT Cannon Crimp Tool and suitable die set (see table).



6. Using a small soldering iron solder center conduct to contact.
NOTE: The center conductor should not protrude beyond the contact or touch the body. Solder should not protrude beyond the slotted section of the contact.



7. Press insert into place or locate the cap in rear of body and dimple or lightly punch to ensure it is locked in position (recommended tool, flat pin ∅3,07 ± 0,05 (.121 ± .002).

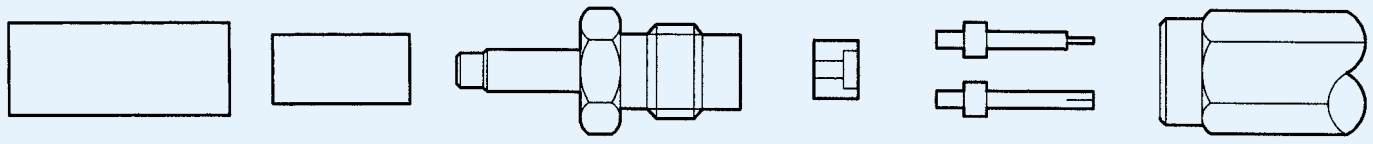


8. Slide heat shrinkable tubing over ferrule flush against body and heat until tubing shrinks down.

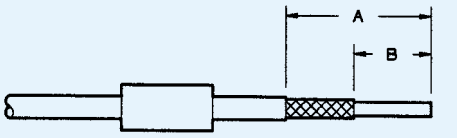
Only common cable retention features are shown in detail. Various body configurations can apply.

Cable Type	Cable Code	Die Size
RG196/U	3196	2,67 (.105)
RG316/U	3188	3,25 (.128)
RD316	3875	3,84 (.151)

AI-227 SMA Straight Connectors, Crimp Type for Braided Cable — Captive Contact

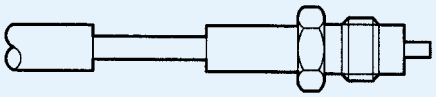


HEAT SHRINKABLE TUBING | CRIMP FERRULE | REAR BODY | INSULATOR | CONTACT | FRONT BODY

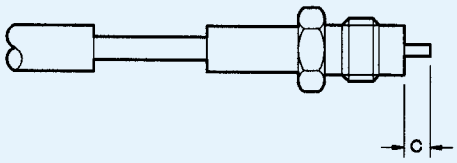


1. Slide ferrule and heat shrinkable tubing on to cable.
2. Trim cable to dimensions as shown

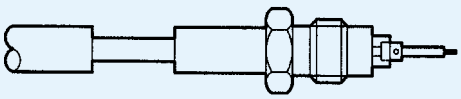
A	B	C
15,00 (.590)	9,00 (.354)	3,00 (.118)



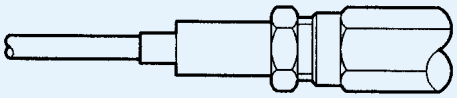
3. Slide body over cable dielectric and under the braid until the braid is flush against the rear of the hexagonal nut.
   NOTE: When using cables with inflexible jackets, it is permissible to make two 3,17 (.125) longitudinal slits in the outer jacket.
4. Slide ferrule flush against the body and crimp in position using ITT Cannon Crimp Tool and suitable die set (see table).



5. Trim back dielectric and center conductor to dimensions shown.
6. Tin center conductor (DO NOT OVER TIN).
7. Assemble insulator over center conductor with counterbore in direction shown.
8. Place a small solder preform made from 0,26 - 0,31 (.010 - .012) dia. (28 swg) multi-core solder in rear of contact.



9. Assemble contact on center conductor, heat to make solder connection ensuring shoulder of contact is flush against rear insulator. Do not allow solder to protrude outside spill hole.
10. Insert crimped assembly into back end of body and tighten to a torque of 0.70 - 0.80 Nm (100 - 110 in. ozs.).

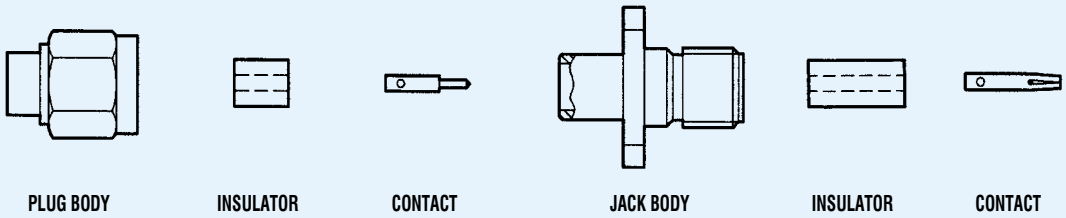


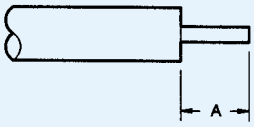
11. Slide heat shrinkable tubing over ferrule and apply heat until tubing shrinks down.

Cable Type	Cable Code	Die Size
RG142/U	3196	2,67 (.105)
RG316/U	3188	3,25 (.128)
RD316	3875	3,84 (.151)

Dimensions are shown in mm (inch)
Dimensions subject to change

AI-252 & AI-278 SMA Straight Connectors, Direct Solder (Separate Center Contact) Type for Semi-Rigid Cable

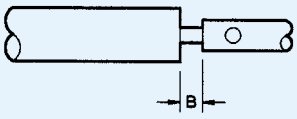




1. Cut cable end square. Trim the cable outer conductor and dielectric as shown taking care not to nick the center conductor. Deburr outer conductor at point of cut.

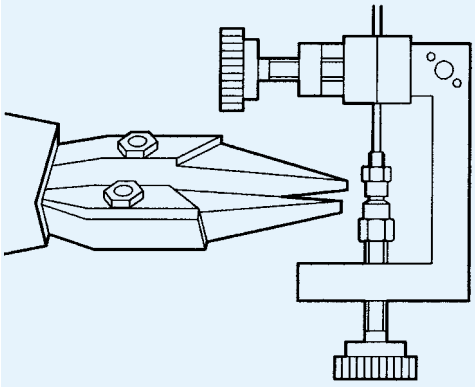
Assembly Instruction No.	Configuration	A	B
AI-252	Plug	3,18 ± 0,25 (.125 ± .010)	0,38 (.015)
AI-278	Flange Jack	2,54 ± 0,25 (.100 ± .010)	0,38 (.015)

2. Tin center conductor (DO NOT OVER TIN).



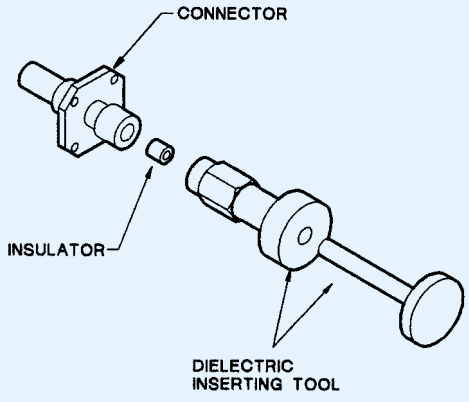
3. Solder contact to center conductor ensuring that dimension shown is maintained. Remove any excess solder.

4. Clean housing area of outer conductor with abrasive paper and clean in a suitable agent.



5. Place connector assembly in Assembly Jig T1848, or other suitable clamping arrangement, with contact in locator tool as shown.

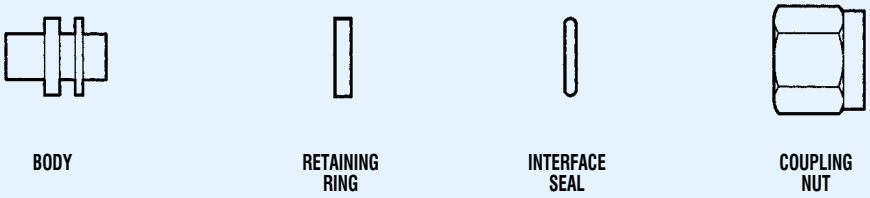
   Tighten screw to secure cable between inserts then tighten locator to seat cable firmly. Place solder ring around cable adjacent to connector body and heat the connector body using an appropriate heat source (solder tongs with variable control). Apply sufficient heat for solder to flow but using minimum heat cycle.

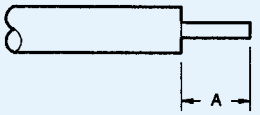


6. Using dielectric insertion Tool T2508 (for plugs) or T2509 (for jacks), press insulator into body. Assembly is now ready for use.

   N.B. Various body configurations can apply.

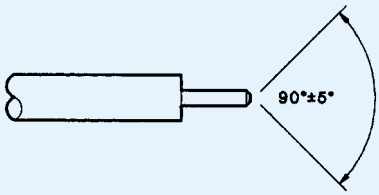
AI-302 SMA Straight Connectors, Direct Solder (Cable Conductor used as Center Contact) Type for Semi-Rigid Cable





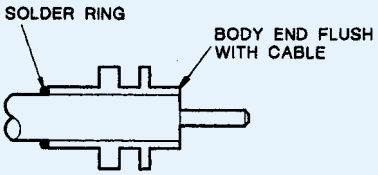
1. Trim the cable outer conductor and dielectric as shown taking care not to nick the center conductor using Tool T2624, if available, or other cable cutting tool. Deburr outer conductor at point of cut.

   'A' = 2,16 ± 0,13 (.085 ± .005)



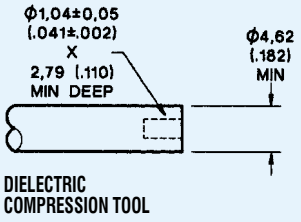
2. Point the end of the center conductor using Tool T2297 if available or a miniature file.

3. If style - 9073 is being assembled slip the coupling nut onto the cable.



4. Clean housing area of outer conductor with abrasive paper and clean in a suitable agent. Place 24 s.w.g. soldering ring and connector body on prepared end of cable. Ensure body is correct way round. End of cable to be flush with end of connector body as shown.

   Using Assembly Jig T1848, or other suitable clamping arrangement, clamp in a vertical position. Heat the connector body using an appropriate heat source (solder tongs with variable control). Apply sufficient heat for solder to flow but using minimum heat cycle.

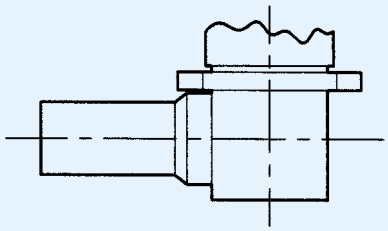


5. Compress expanded dielectric back into cable outer conductor with Dielectric Compression Tool as shown, until it is flush with end of body and outer conductor.

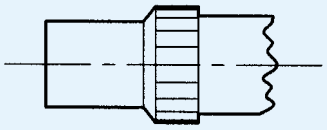
6. Fit the interface seal.

7. Install the spring retaining ring, compress with tool T0557/1 and fit the coupling nut.

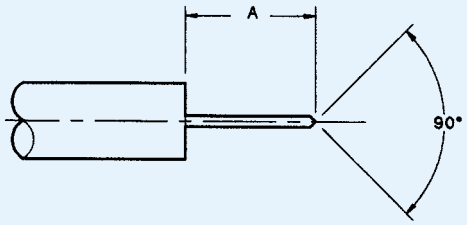
AI-436, AI-499 & AI-523 SMS & SSIS® Straight and Right Angle Connectors, Direct Solder Type for Semi-Rigid Cable



BODY ASSEMBLY

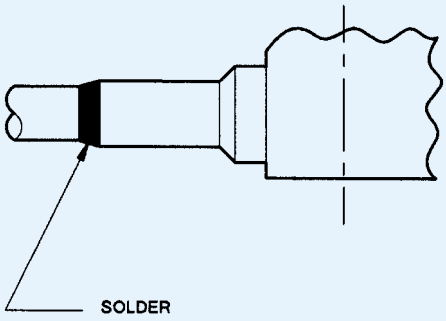


BODY ASSEMBLY



1. Trim cable to dimensions shown, being careful not to nick center conductor

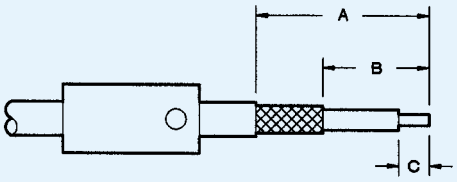
   'A' = 2,29 (.090).



2. Insert cable into rear of body until cable seats in counterbore. Holding firm in this position. Solder cable to body.

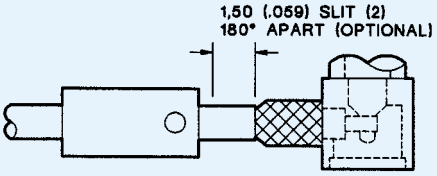
NOTE
Only common cable entry features are shown in detail. Various body configurations can apply.

AI-472 & BAI-015 SMB & SMS Right Angle Connectors, Crimp Type for Braided Cable

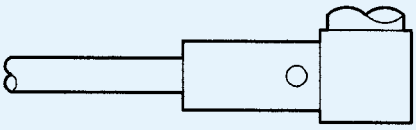


1. Trim cable to dimensions shown taking care not to nick braid or center conductor. Tin center conductor (DO NOT OVER TIN) then slip crimp ferrule (and tubing with SMS) over cable with inspection hole toward trimmed end.

Assembly Instruction No.	A	B	C
BAI-015	10,00 (.393)	4,00 (.157)	1,50 (.059)
AI-472	11,10 (.437)	4,37 (.172)	0,79 (.031)



2. Insert trimmed cable into back end of body. The tubular body extension will slide under the braid with the rear portion of extension fitting under the jacket as shown. The center conductor will extend into slot in contact.
   NOTE: On smaller diameter cables, two longitudinal slits in the jacket, 180° apart, may be cut to ease assembly.



3. Slip ferrule up over braid to face of square body and crimp, using ITT Cannon Crimp Tool and suitable die set (see table).

Cable Type	Cable Code	Die Size
RG142/U	9052	5,41 (.213)
RG196/U	3196	2,67 (.105)
RG316/U	0000	3,25 (.128)
RG316/U	3188/9416	3,25 (.128)
RD316	9399	3,84 (.151)

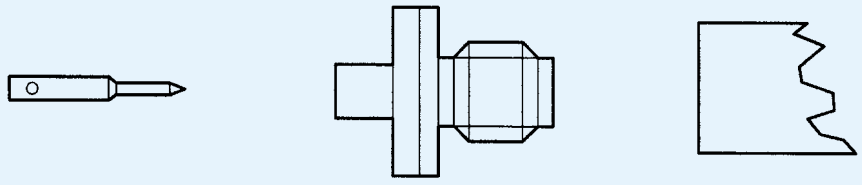
4. Using a small soldering iron solder center conductor to contact.
   NOTE: The center conductor should not protrude beyond the contact to touch the body. Solder should not protrude beyond the slotted section of the contact.

5. Locate the cap in rear of body and dimple or lightly punch to ensure it is locked in position. (A flat punch is recommended).

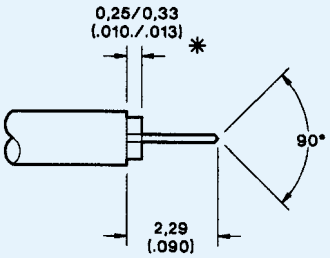
6. On SMS slip tubing over the ferrule and heat until the shrinkable tubing fits smoothly around the cable.

Only common cable retention features are shown in detail. Various body configurations can apply.

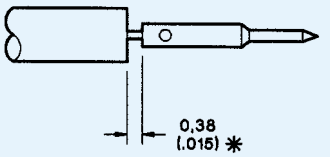
AI-480 SSIS® Straight Plug Connectors, Direct Solder Type for Semi-Rigid Cable



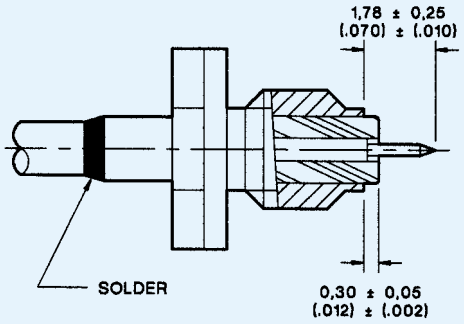
CONTACT BODY BUSHING



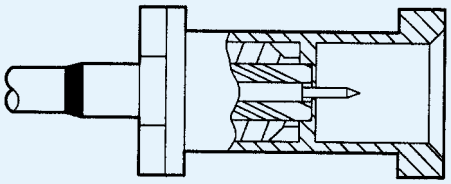
1. Trim cable to dimensions shown, being careful not to nick center conductor. Tin center conductor (DO NOT OVER TIN).
   * Trim dielectric as shown for Belden Conformable cable only.



2. Using a 0,38 (.015) spacer, solder contact to center conductor.
   * Use 0,13 (.005) spacer on Belden Conformable cable only.

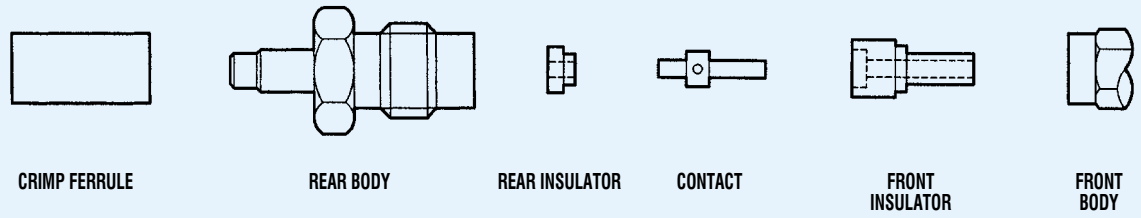


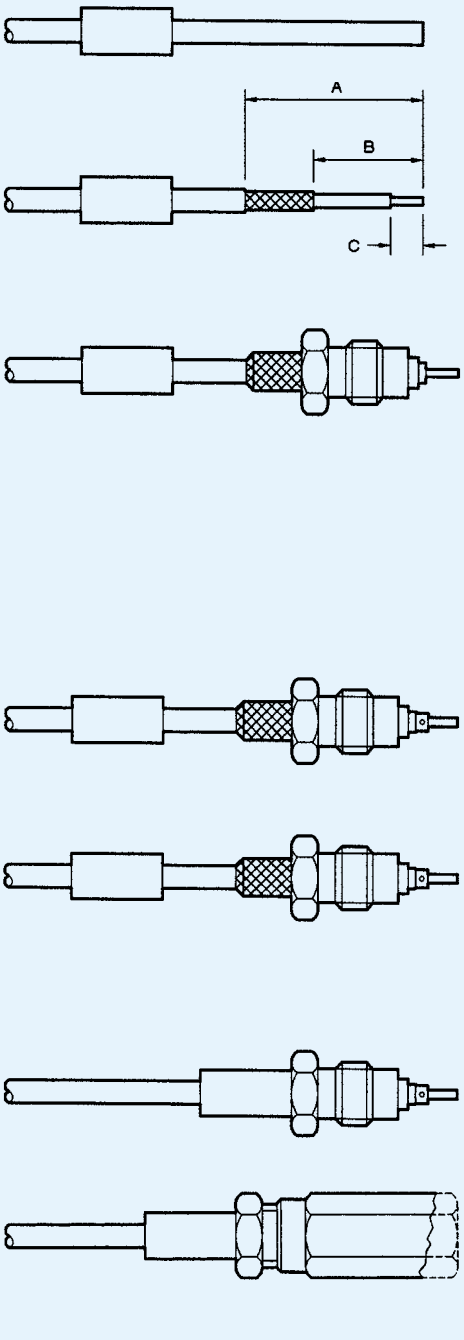
3. Slide cable into rear of body. Holding securely in this position, solder body to cable.



4. Insert into rear of bushing and tighten with a torque of 0,21 Nm (30 in. ozs.)

AI-504 & BAI-003 SMB/SMC & SMS Straight Connectors, Crimp Type for Braided Cable





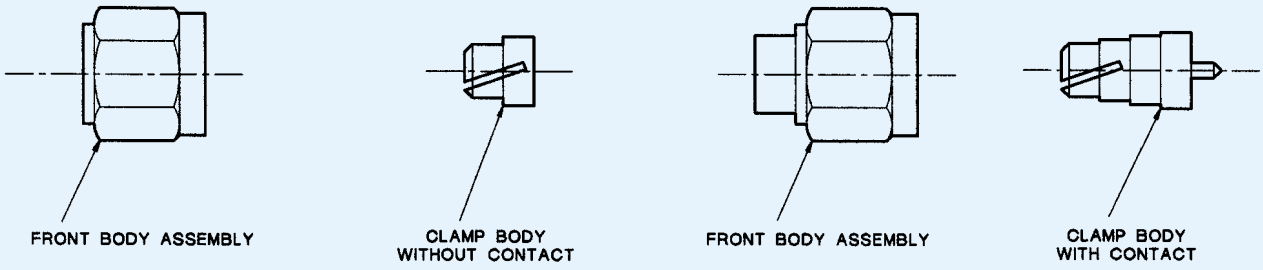
1. Slide ferrule on cable, (and tubing with SMS)
2. Trim cable to dimensions shown taking care not to nick braid or center conductor.

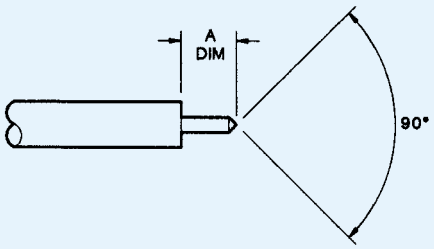
Assembly Instruction No.	A	B	C
BAI-003	15,50 (.610)	9,50 (.374)	2,50 (.098)
AI-504	17,01 (.672)	11,13 (.438)	3,18 (.125)

3. Tin center conductor (DO NOT OVER TIN).
4. Slide rear body over cable dielectric and under the braid until the braid is flush against the rear of the hexagonal nut.
   NOTE: When using cables with inflexible jackets two 3,17 (.125) slits in the outer jacket are permissible.
5. Slide on rear insulator so that the counterbore rests against the cable dielectric.
6. Place a small solder preform made from 0,26 - 0,31 (.010 - .012) dia (28 swg) multi-core solder in rear of contact.
7. Assemble contact on center conductor, heat to make solder connection ensuring shoulder of contact is flush against rear insulator.
   N.B. Do not allow solder to protrude outside spill hole.
8. Slide ferrule against body and crimp using ITT Cannon Crimp Tool and suitable die set (see table below).
9. Slide on front insulator (if not already assembled in body).
10. Screw on front body and tighten to 0,63 - 0,70 Nm (90 - 100 in. ozs.).
11. On SMS slip tubing over the ferrule and heat until the shrinkable tubing fits smoothly around the cable.
    Only common cable retention features are shown in detail. Various body configurations can apply.

Cable Type	Cable Code	Die Size
RG142/U	9052	5,41 (.213)
RG196/U	3196	2,67 (.105)
RG316/U	0000/9416	3,25 (.128)
RD316	9399	3,84 (.151)

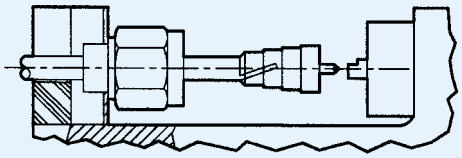
AI-507 & AI-521 SMA Straight Connectors, Solderless Type for Semi-Rigid Cable



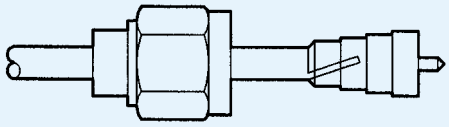


1. Trim cable to dimensions shown. Be careful not to nick center conductor. Ensure dielectric is flush. Remove burrs from the copper jacket end. Pointing of the center conductor is essential.

Assembly Instruction No.	Part Number	A
AI 507	055-624-6703890	2,16 ± 0,13 (.085 ± .005)
AI 521	055-607-6702890	1,78 ± 0,13 (.085 ± .005)
AI 521	055-607-6203890	2,16 ± 0,13 (.085 ± .005)

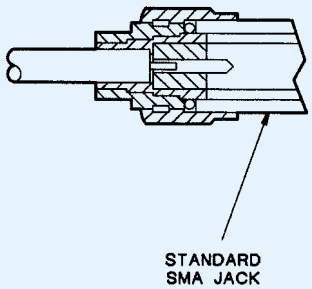


2. Slide front body assembly onto cable. Firmly seat the clamp body collet on end of cable. Place assembly into tool 050-000-0130000 with cable in holding jaws and cable end in piston die. Squeeze tool handles fully and release.



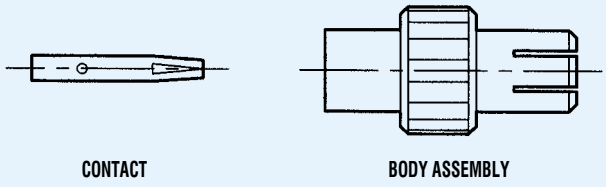
Alternatively

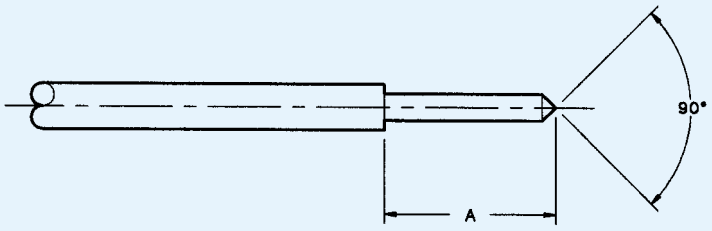
3. Slide front body assembly onto cable, then slide cable into rear end of clamp body until it seats firmly in counterbore.
NOTE: Where the separate contact versions are used the clamp body should be held securely in any standard SMA jack to avoid undue pressure on the center contact. The center conductor should click into place as it overcomes tension on the tynes.



4. Push front body assembly up over the clamp body then holding cable securely in counterbore, and using any standard SMA jack as shown, complete assembly by simply tightening mating jack with a torque of 0.79 to 1.13 Nm (7 to 10 in. lbs.).

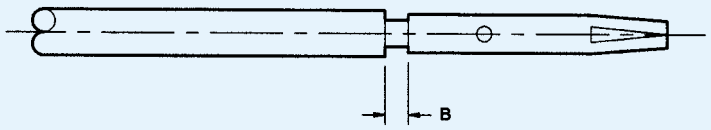
AI-632 SSIS® Straight Jack Connectors, Direct Solder Type for Semi-Rigid Cable



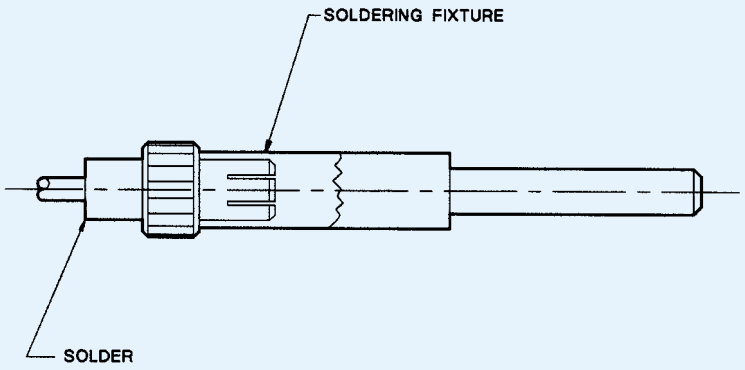


1. Trim cable to dimension shown. Being careful not to nick center conductor.

A	B
2,29 (.090)	0,25 ± 0,025 (.010 ± .001)

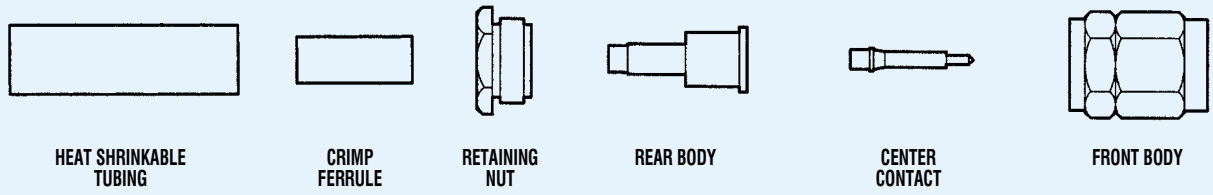


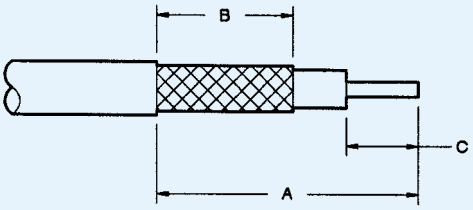
2. Solder contact to center conductor, maintaining 'B' dimension. Remove excess solder from outside of contact.



3. Insert body and insulator sub-assembly completely into soldering fixture (050-000-0930). Insert cable assembly into rear of sub-assembly with the contact butting against the soldering fixture. Apply soft solder to rear of sub-assembly and heat to make solder connection. Remove assembly from fixture.

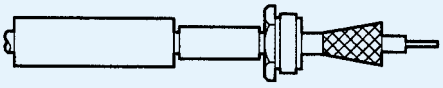
AI-703 SMA Straight Connectors, Captive Contact, Crimp Type for Braided Cable



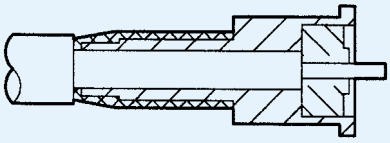


1. Strip cable to dimensions shown. Do not nick outer or inner conductors. Tin inner conductor.

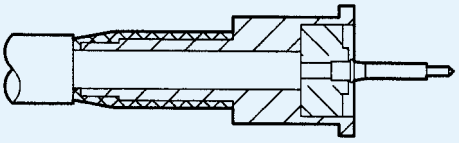
A	B	C
13,46 (.530)	7,11 (.280)	3,56 (.140)



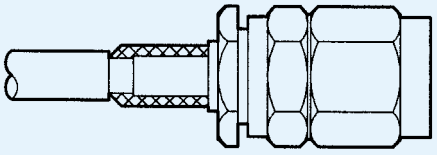
2. Place shrink tubing, crimp ferrule and retaining nut on cable. Flare the cable outer conductor as shown.



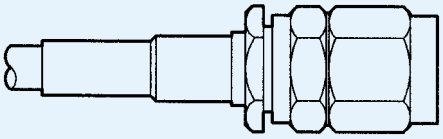
3. Insert cable dielectric into rear body until it bottoms firmly against insulator as shown.



4. Place a 0,38 (.015) dia x 2,50 ± 0,51 (.100 ± .020) long solder wire into solder hole of the center contact. Heat center contact and push it over cable inner conductor until it bottoms against insulator as shown. Remove excess solder if necessary.



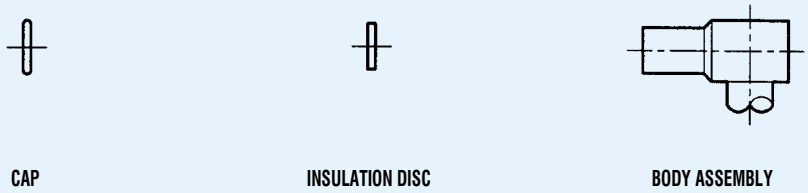
5. Insert rear body into front body. Engage threads of retaining nut to front body and hand tighten retaining nut. Hold front body firmly with a 7,93 (.312) hex. torque wrench and torque it to 1,13-1,69 Nm (10-15 in. lbs.). by turning retaining nut only.



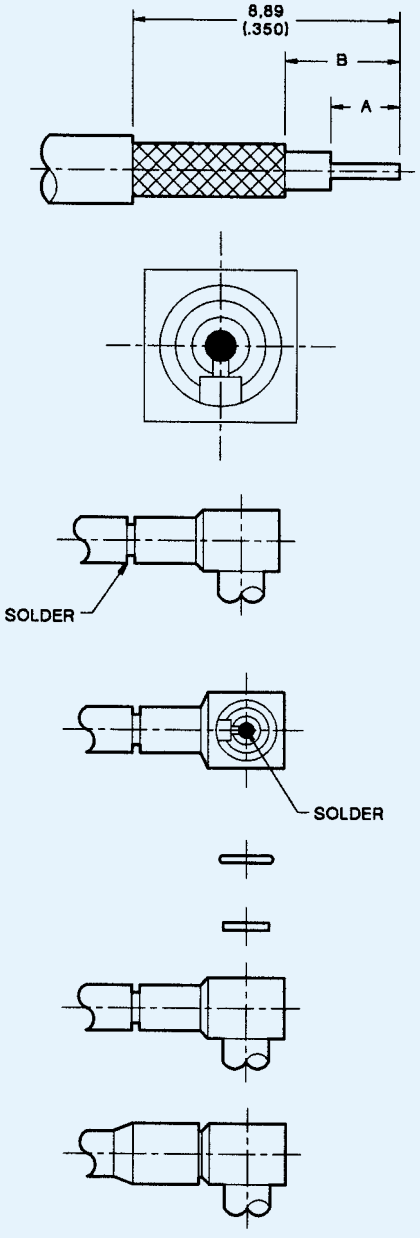
6. Slide crimp ferrule over flared portion of cable outer conductor. Crimp outer sleeve in place as shown. Push cable firmly toward connector when crimping. Trim and remove any excess outer conductor strands if necessary. Position shrink tubing over crimp sleeve apply indirect heat to shrink tubing down.

Cable Type	Cable Code	Die Size
RG142/U	9142	5,41 (.213)
RG316/U	9188	3,25 (.128)
RD316	9875	3,84 (.151)

AI-755 MCX Right Angle Connectors, Direct Solder Type for Times T - Flex Cable



CAP INSULATION DISC BODY ASSEMBLY



1. Dip 9,50 (.374) to 12,70 (.500) of both ends of the cable into a solder pot. Flux may be applied to the ends of the cable prior to dipping, if desired.

2. Trim cable to dimensions shown being careful not to nick the center conductor or braid. Trim center conductor (DO NOT OVER TIN).

A	B
2,29 (.090)	3,69 (.145)

3. Orientate slot of contact and insulator to be parallel to the cable entry hole as shown.

4. Push cable into body and solder in place.

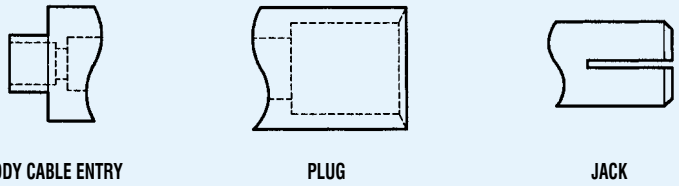
5. Solder center conductor to center contact (do not over solder).

6. Insert insulation disc (if supplied), into bore then dimple or lightly punch cap into counterbore until fully home.

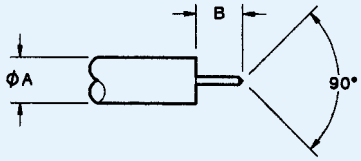
7. Install shrink tubing as shown, apply indirect heat to shrink the tubing down.

Dimensions are shown in mm (inch)
Dimensions subject to change

AI-762 & AI-763 CMM Straight Connectors, Direct Solder Type for Semi-Rigid Cable

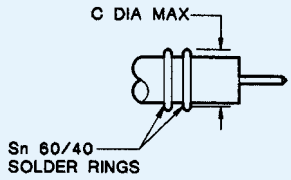


BODY CABLE ENTRY PLUG JACK



1. Trim cable to dimension 'B' shown. Being careful not to nick the center conductor.

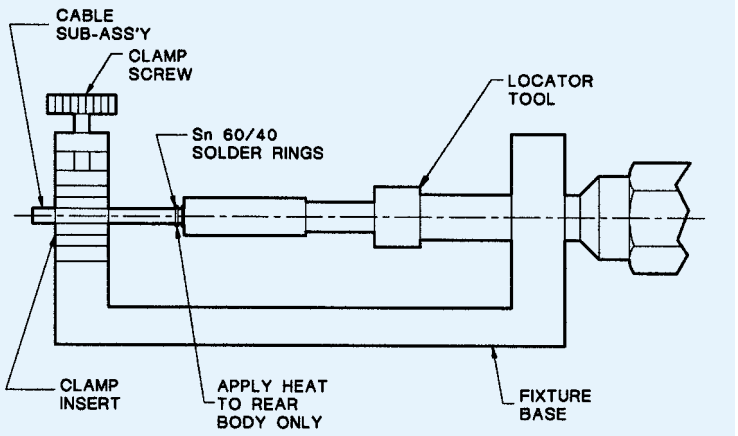
Cable Dia. A	B
1,20 (.047)	2,04 (.080)



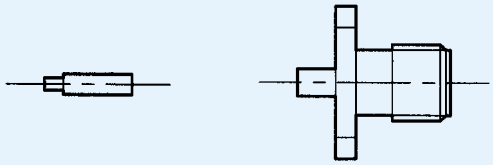
2. Place two solder rings per table below, over the cable.

Cable Dia.	'C' Dia. max	Solder Wire Dia.
1,20 (.047)	1,78 (.070)	0,26 (.010)

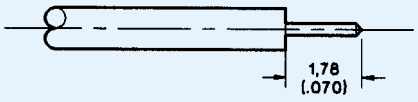
3. Place connector in fixture base seated against locator and insert cable into cable entry end of connector until cable seats firmly. Tighten Clamp screw to secure cable. Tighten locator tool firmly against connector interface (plug) or front of connector (jack). Slide solder rings against rear body as shown. Apply sufficient heat to rear body only using an appropriate heat source (solder tongs with variable control) for solder to flow but using minimum heat cycle.



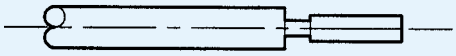
AI-770 SMA Flange Mount Connectors, Direct Solder Type for Semi-Rigid Cable



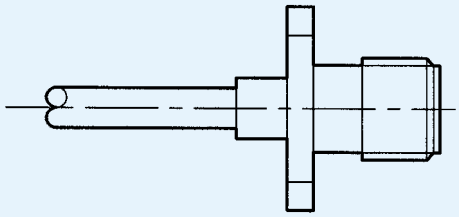
CONTACT BODY ASSEMBLY



1. Strip cable to dimension shown, do not nick inner conductor.



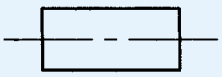
2. Insert contact over inner conductor and push until it bottoms against the cable dielectric as shown. Solder contact to inner conductor through solder hole. Trim excess of cable dielectric, if required.



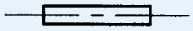
3. Slide contact and cable into rear of body assembly until it seats firmly against insulator in body. Solder cable to body applying sufficient heat to body for solder to flow, but using minimum heat cycle.

Dimensions are shown in mm (inch)
Dimensions subject to change

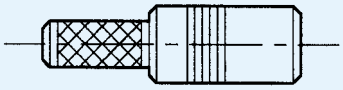
AI-772 MCX Straight Connectors, Crimp Type for Braided Cable



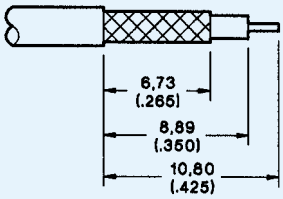
FERRULE



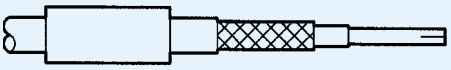
CONTACT



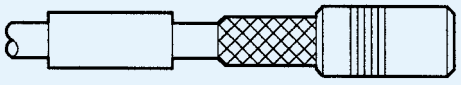
BODY ASSEMBLY



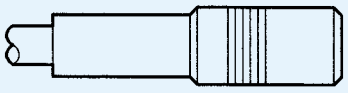
1. Trim cable to dimensions shown. Do not nick outer braid or center conductor. Tin center conductor with solder (DO NOT OVER TIN).



2. Slide ferrule over stripped end of cable. Tin inside diameter of contact with solder. Slide contact over center conductor while applying heat until contact butts on the dielectric of the cable.



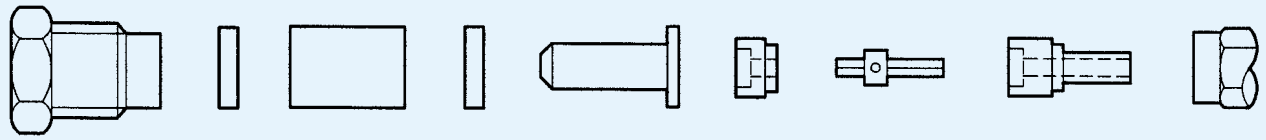
3. Slide contact and cable into the body sub-assembly until the dielectric of the cable stops on the insulator.



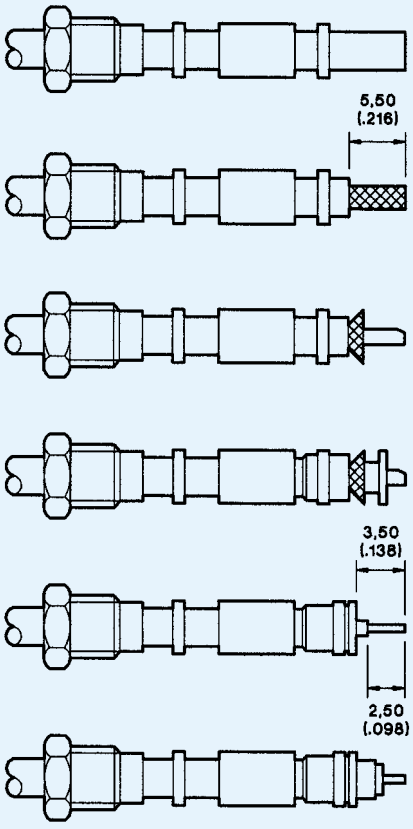
4. Slide ferrule up over the cable braid until it touches the body. Crimp the ferrule in place as shown using ITT Cannon Crimp Tool and suitable die set (see table).

Cable Type	Die Size
RG178/U	2,67 (.105)
RG316/U	3,25 (.128)

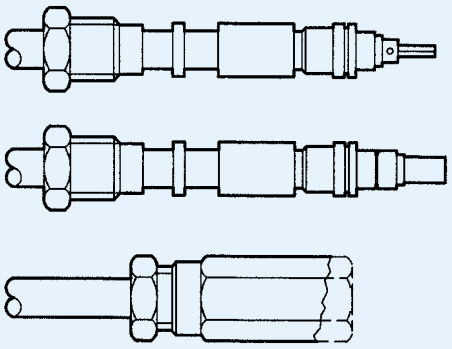
BAI-001 SMB/SMC Straight Connectors, Clamp Type for Braided Cable



CLAMP NUT | No. 1 WASHER | GASKET | No. 2 WASHER | SLEEVE | REAR INSULATOR | CONTACT | FRONT INSULATOR | FRONT BODY



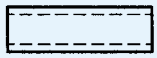
1. Slide clamp nut, No. 1 washer, gasket and No. 2 washer over cable.
2. Trim cable to dimension shown taking care not to nick the braid.
3. Thumb braid out radially at right angles to dielectric.
4. A small chamfer may now be cut on the end of cable dielectric, to assist assembly of sleeve.
5. Slide sleeve over cable dielectric and under braid and outer jacket until the flange of the sleeve is flush against the braid.
6. Move No.2 washer up to braid and trim braid flush with the flange of the sleeve.
7. Trim cable dielectric and center conductor to dimensions shown taking care not to nick the center conductor.
8. Tin center conductor (DO NOT OVER TIN).
9. Slide rear insulator over cable.
10. Place a small solder preform made from 0,26 - 0,31 (.010 - .012) dia (28 swg) multi-core solder in rear of contact.



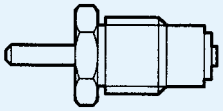
11. Push contact on center conductor as far as possible. Heat center conductor and push until the shoulder of the contact is flush against the rear insulator. Do not allow solder to protrude outside spill hole.
12. Slide on front insulator flush against rear insulator (if not already assembled in body).
13. Move clamp nut, No. 1 washer and gasket up to No. 2 washer, slide on front body and tighten clamp nut to required torque: 0,63 - 0,70 Nm (90 - 100 in. ozs.).

    Only common cable retention features are shown in detail. Various body configurations can apply.

BBAI-1040 SMZ Straight Connectors, Solder Contact, for Braided Cable



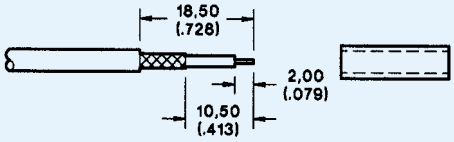
FERRULE



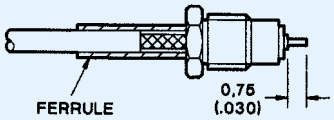
REAR BODY ASSEMBLY

CONTACT (REAR PORTION)

FRONT INSULATOR (PLUG ONLY)

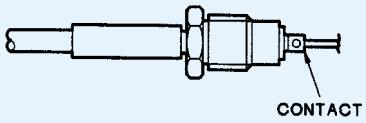


1. Trim cable to dimensions shown being careful not to nick the braid or center conductor. Tin center conductor, (DO NOT OVER TIN) then slip ferrule over cable.

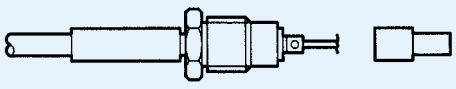


2. Insert trimmed cable into back end of rear body. The tubular extension will slide under the braid. The tinned end of the center conductor should project 0,75 (.030) beyond the face of the insulator. Slip ferrule up to hex. Face of rear body and crimp in position using ITT Cannon crimp tool and suitable die set (see table).

Cable	Die Size
BT2001	4,52 (.178)
BT2002	5,18 (.204)
BT2003	6,81 (.268)
BT3002	4,52 (.178)
RG59B/U	6,48 (.255)
RG62/U	6,48 (.255)
RG140/U	6,48 (.255)
RG179B/U	3,25 (.128)
RG180/U	4,52 (.178)
RG187A/U	3,25 (.128)
RG195A/U	4,52 (.178)
RD179	3,84 (.151)
TZC75024	4,52 (.178)

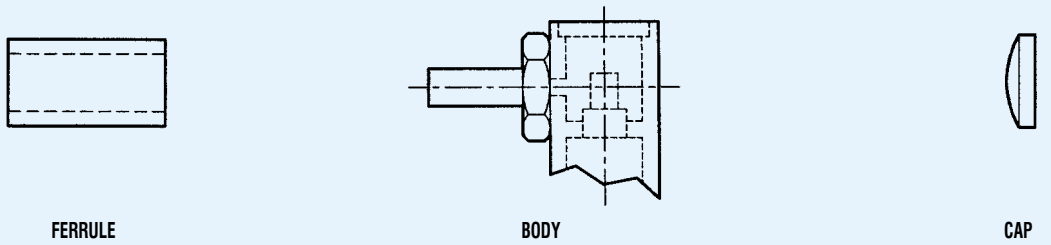


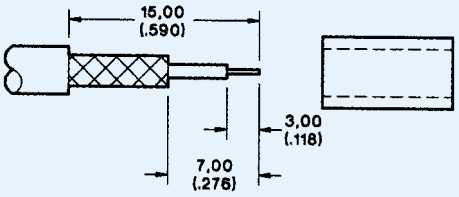
3. Add 2,00 (.078) long slug of 24 SWG60/40 tin/lead solder to bore of contact. Assemble contact onto center conductor with the shoulder of contact flush with insulator as shown. Heat to make soldered connection.



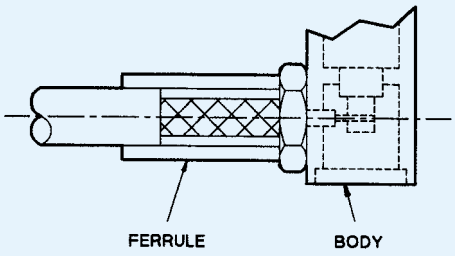
4. Assemble front insulator over contact (jack front insulator is pre-assembled into front body at the factory) then slip front body onto rear body and tighten with torque of 0,99 - 1,06 Nm (140 - 150 in. ozs.)

BBAI-1041 SMZ Right Angle Connectors, Solder Contact, for Braided Cable

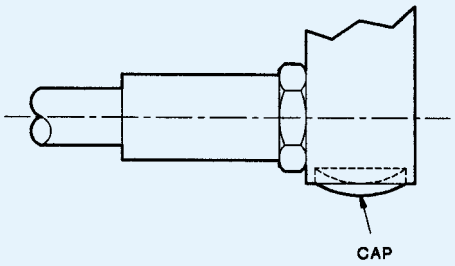




1. Trim cable to dimensions shown being careful not to nick the braid or center conductor. Tin center conductor, (DO NOT OVER TIN), then slip ferrule over cable.



2. Insert trimmed cable into tubular extension. This will slide under the braid. The center conductor will extend into the slotted contact.

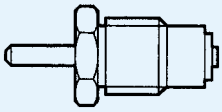


3. Slip cable and ferrule up to face of body and crimp in position using ITT Cannon crimp tool and suitable die set (see table). Solder center conductor to contact. Press cap into body using a flat punch or ITT Cannon Tool T2921.

Cable	Die Size
BT2001	4,52 (.178)
BT2002	5,18 (.204)
BT2003	6,81 (.268)
BT3002	4,52 (.178)
RG59B/U	6,48 (.255)
RG62/U	6,48 (.255)
RG140/U	6,48 (.255)
RG179B/U	3,25 (.128)
RG180/U	4,52 (.178)
RG187A/U	3,25 (.128)
RG195A/U	4,52 (.178)
RD179	3,84 (.151)
TZC75024	4,52 (.178)

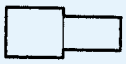
BBAI-1119 SMZ Straight Connectors, Crimp Contact, for Braided Cable

FERRULE

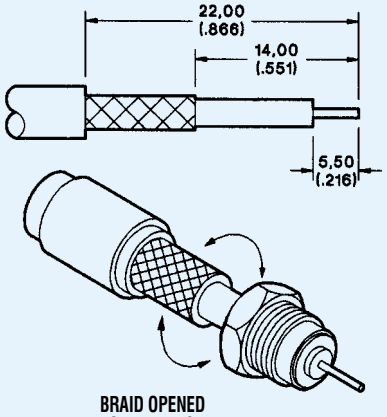


REAR BODY ASSEMBLY

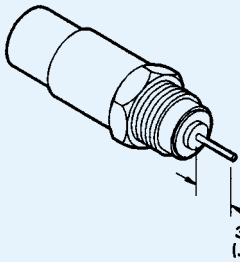
CONTACT (REAR PORTION)

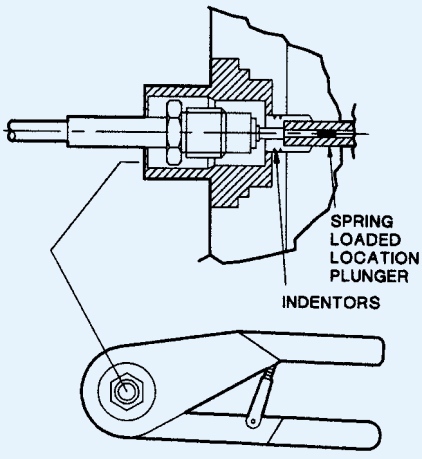


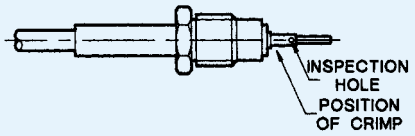
FRONT INSULATOR (PLUG ONLY)



BRAID OPENED FOR REAR BODY







1. Check that the center contact is a free fit in the front insulator and that you have all the connector parts. The termination technique and cable preparation dimensions for the sockets are the same.

2. Strip the cable to the dimensions shown taking care not to damage the braid, dielectric or inner conductor. Slip ferrule over cable.

3. Slide the connector body over the cable so that the rear body goes between the dielectric and the braid. Gently twisting and rocking the connector body to spread the braid will help. Care must be taken to ensure that no strands of braid are trapped under the body.

4. Slide the crimp ferrule forward over the braid until it butts up against the backnut. Crimp using ITT Cannon crimp tool fitted with suitable die set (see table).

Cable	Die Size
BT2001	4,52 (.178)
BT2002	5,18 (.204)
BT2003	6,81 (.268)
BT3002	4,52 (.178)
RG59B/U	6,48 (.255)
RG179B/U	3,25 (.128)
RG187A/U	3,25 (.128)
TZC75024	4,52 (.178)

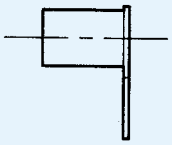
5. Trim the center conductor so that 3,50 (.138) protrudes from the face of the rear insulator. Position the crimp type center pin over the end of the center conductor. The wire should be visible through the inspection hole when positioned for crimping.

6. A separate crimping tool will be needed to crimp the center pin. A suitable tool being the ITT Cannon crimp tool T4519.

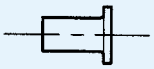
7. The center pin together with the connector body is inserted into the locator of the crimp tool, taking care that the center pin does not fall off in the process! As the connector body is inserted, the spring loaded plunger positions the center pin against the rear insulator. With the connector firmly pushed into the locator, crimp the center pin. (Ensure assembly is resting on bottom of locator.)

8. Withdraw the connector. Assemble the front and rear bodies. If a free fit front insulator is utilised ensure that it is positioned the correct way round. Finally tighten the two body sections using torque wrenches ITT Cannon part numbers T0854/M8/E and T0854/13/E, to a torque of 0,98 - 1,06 Nm (140 - 150 in. ozs.).

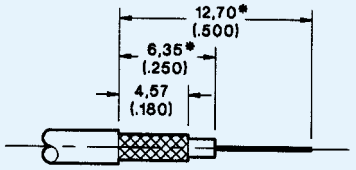
BBAI-1203 Coaxial Terminations, 1 and 2 Point Direct PCB



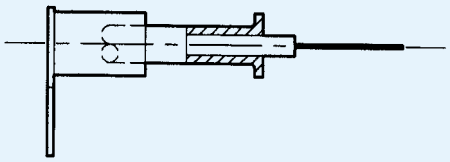
TAB FERRULE



CRIMP BODY

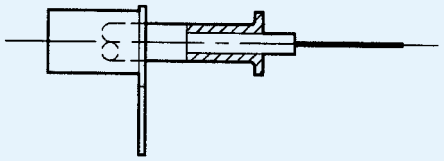


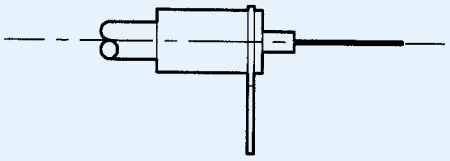
1. Trim cable to dimensions shown being careful not to nick or damage braids or center conductor. Trim center conductor.
   * These dimensions suit 2,54 (.100) and 7,62 (.300) PCB pitches, for other pitches see Note 4.



2. Slide Tab-Ferrule over cable.

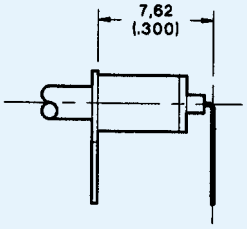
   NOTE: Orientation of tab-ferrule is optional depending upon mounting requirements. Flare braids and slide crimp body over cable dielectric until braids meet flange on crimp body.

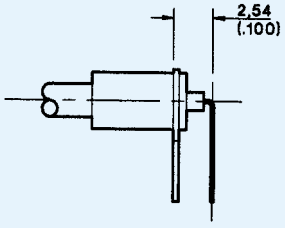




3. Slide tab-ferrule over braids to face of flange and crimp using ITT Cannon crimp tool and suitable die set (see table).

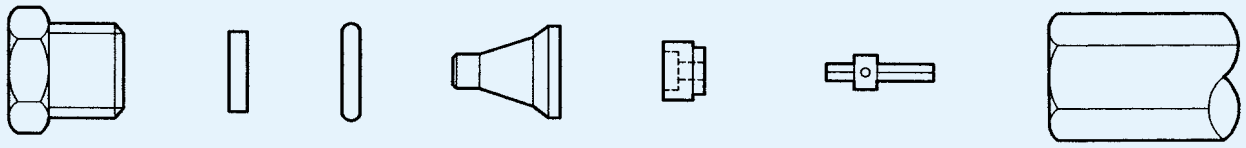
Cable	Die Size
RG174/U	3,25 (.128)
RG178/U	2,67 (.105)
RG179/U	3,25 (.128)
RG188/U	3,25 (.128)
RG196/U	2,67 (.105)
RG316/U	3,25 (.128)



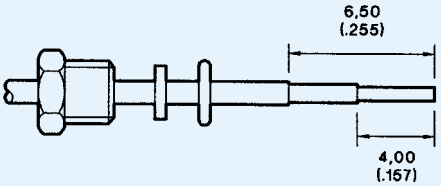


4. Bend center conductor to dimension shown depending upon preferred orientation. These dimensions suit 2,54 (.100) and 7,62 (.300) PCB pitches. For other pitches of 2,54 (.100) multiples add 2,54 (.100) multiples, to the 12,70 (.500) and 6,35 (.250) dimensions in the cable stripping instructions Note 1.

BBAI-1213 SMB Straight Connectors, Clamp Type for Braided Cable

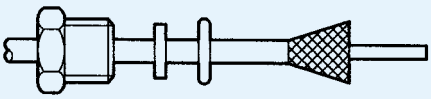


CLAMP NUT | WASHER | 'O' RING | SLEEVE | INSULATOR | CONTACT | BODY



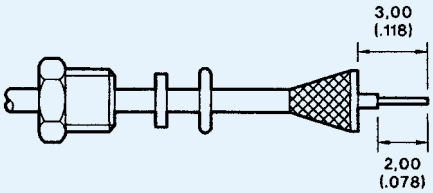
1. Slide clamp nut, washer and 'O' ring over cable.

2. Trim cable to dimensions shown being careful not to nick the braid.



3. Thumb braid out radially at right angles to cable dielectric.

4. Slide sleeve over dielectric and under braid until sleeve is flush with braid.
   NOTE: When using cables with inflexible jackets it is permissible to make two 3,17 (.125) longitudinal slits in the outer jacket.

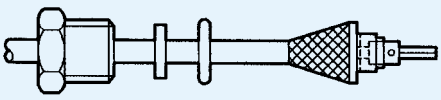


5. Trim braid flush with flange of sleeve.

6. Trim back dielectric to dimensions shown.

7. Tin center conductor (DO NOT OVER TIN).

8. Fit insulator over center conductor.

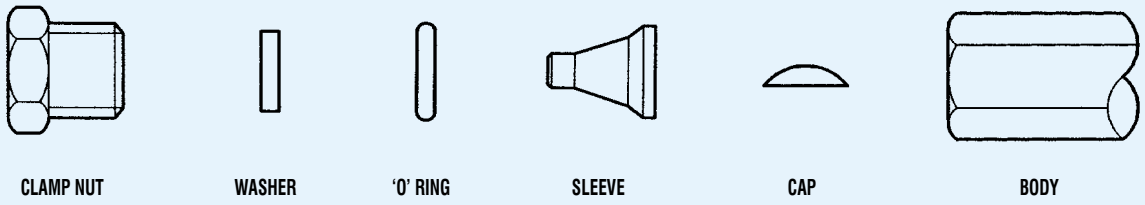


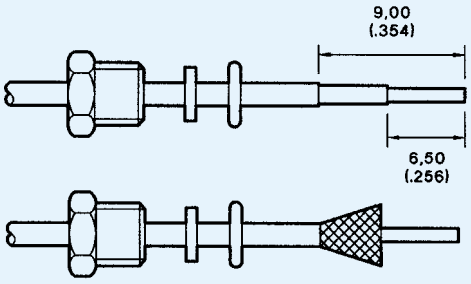
9. Place a solder preform, made from 0,26 - 0,31 (.010 - .012) dia. (28 swg) multi-core solder in rear of contact on center conductor. Heat to make solder connection ensuring shoulder of contact is flush against rear insulator. Do not allow solder to protrude outside spill hole.

10. Fit front insulator if not part of body. Slide 'O' ring forward to trap braid around sleeve.

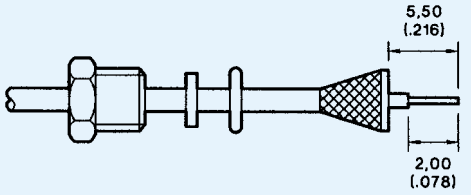
11. Thread on body and tighten clamp nut to 1.02 Nm (9 in. lbs.).

BBAI-1221 SMB Right Angle Connectors, Clamp Type for Braided Cable

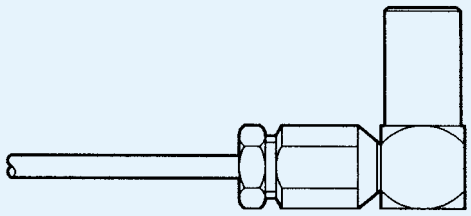




1. Slide clamp nut, washer and '0' ring over cable.
2. Trim cable to dimensions shown being careful not to nick the braid.
3. Thumb braid out radially at right angles to cable dielectric.
4. Slide sleeve over dielectric and under braid until sleeve is flush with braid.
   N.B. When using cables with inflexible jackets it is permissible to make two 3,17 (.125) longitudinal slits in the outer jacket.



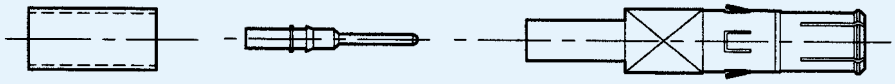
5. Trim braid flush with flange of sleeve.
6. Trim back dielectric to dimension shown.
7. Tin center conductor (DO NOT OVER TIN).
8. Slide '0' ring forward to trap braid around sleeve.
9. Thread into rear body and tighten clamp nut to 1,02 Nm (9 in. lbs.).



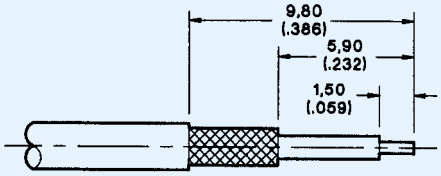
10. Center conductor will extend into contact slot. Using a small soldering iron solder center conductor onto contact.
11. Locate the cap in rear of body and dimple or lightly punch to ensure it is locked in position (recommended tool is a flat punch).

Dimensions are shown in mm (inch)
Dimensions subject to change

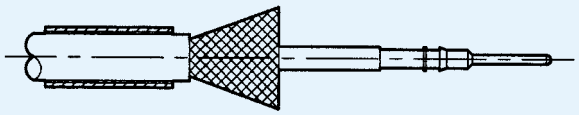
BBAI-1228 MPC Straight Connectors, Crimp Type for Braided Cable



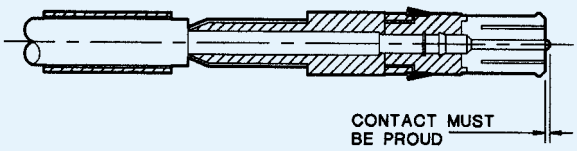
CRIMP FERRULE CONTACT BODY ASSEMBLY



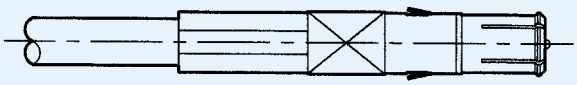
1. Trim cable to dimensions shown being careful not to nick or damage braids or center conductor. Twist center conductor filaments together.



2. Slide ferrule over cable. Slide contact over center conductor and crimp using ITT Cannon Tool CT120090-53 and Positioner 077350-1044. Flare braids as shown.

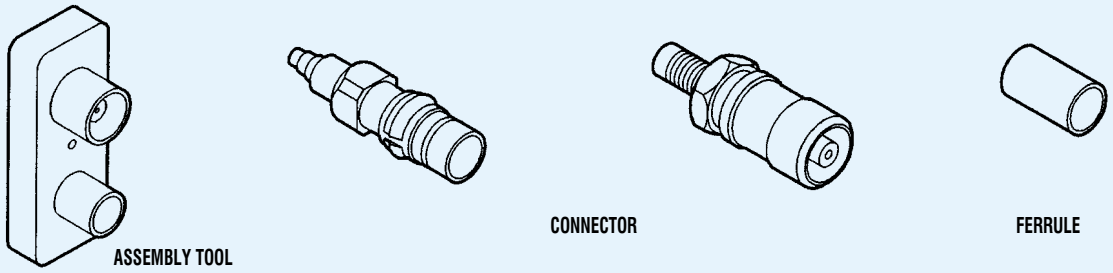


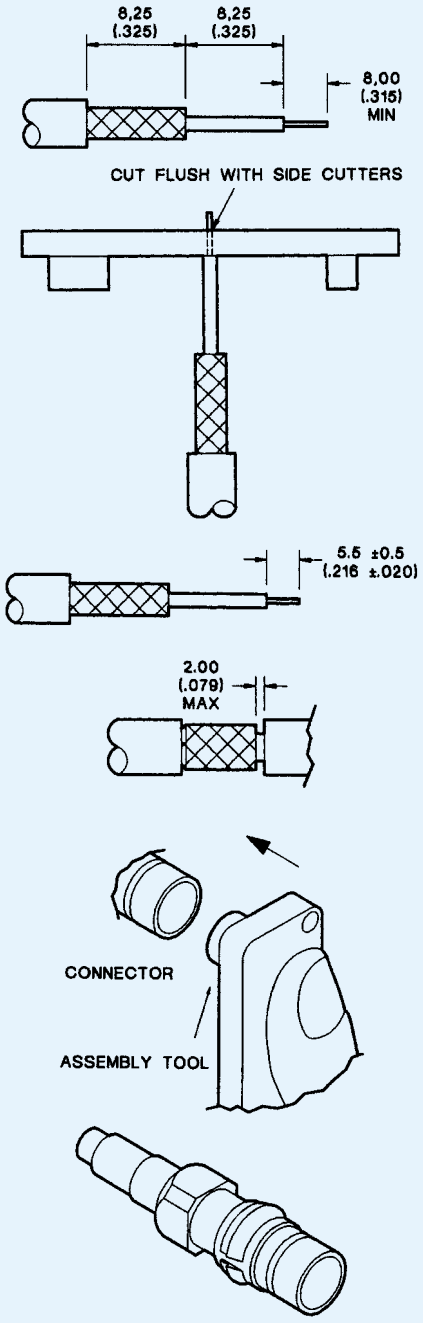
3. Slide rear end of body assembly over contact and cable and under braids until contact butts inside insulator, with full contact radius just protruding from front of insert, as shown.



4. Slide ferrule over braids until it butts against insert square flange and crimp using ITT Cannon Tool T1025/- and die set T1025/3.

BBAI-1238 SMZ QT™ Connectors for Braided Cable





1. Prepare cable, using a suitable stripping, tool to the dimensions shown being careful not to damage the braid, dielectric or inner conductor.

   NOTE: Do not attempt to mate unterminated connectors.

2. Trim center conductor to dimensions shown by inserting conductor through the hole in the center of the assembly tool and trimming, with sharp side cutters, flush with the face of the tool. DIMENSIONS CAN BE CHECKED USING THE TEMPLATE ON THE REAR FACE OF THE ASSEMBLY TOOL.

3. ENSURE THAT THE INNER CONDUCTOR IS STRAIGHT. Slide the crimp ferrule over the cable sheath. Fit the connector body onto the cable so that the rear body slides between the dielectric and the braid (gently twisting and rocking the connector body to spread the braid will help). Care must be taken to ensure that no strands of braid are trapped under the body. A small gap [2,00 (.079) maximum] should be evident between braid and face of body.

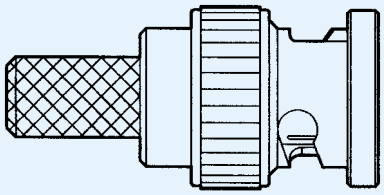
4. Support cable/connector in one hand. Press home insulator using assembly tool provided, using the larger for the DDF jack and the smaller for the Posilock plug.

5. Slide the crimp ferrule forward, over the braid, until it butts up against the rear of the connector. Crimp using ITT Cannon crimp tool fitted with a suitable die set (see table).

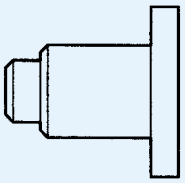
Cable	Die Size
BT2003	6,81 (.268)
BT3002	4,52 (.178)
TZC75024	4,52 (.178)

BBAI-1243 QT™ 75Ω BNC Plug for Braided Cable

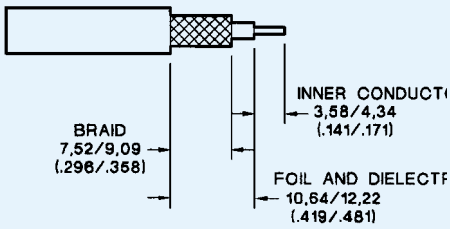
CRIMP FERRULE



PLUG ASSEMBLY



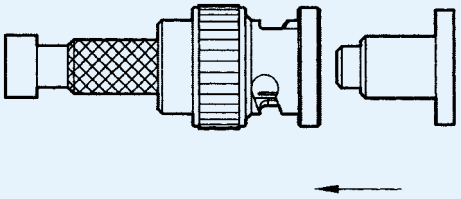
ASSEMBLY TOOL



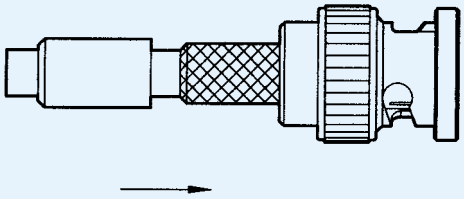
1. Prepare cable using a suitable stripping tool to the dimensions shown, being careful not to damage the braid, dielectric, foil or inner conductor.

   NOTE: Do not attempt to mate unterminated connectors.

2. ENSURE THAT THE INNER CONDUCTOR IS STRAIGHT.
   After removal of the assembly tool from the crimp barrel (if fitted), slide crimp ferrule over the cable sheath. Fit the plug assembly onto the cable so that the crimp barrel slides between the dielectric/foil and the braid (gently twisting and rocking the plug assembly to spread the braid will help). Care must be taken to ensure that no strands of braid are trapped under the body. The cable must be inserted until the dielectric can be felt butting against the rear insulator.

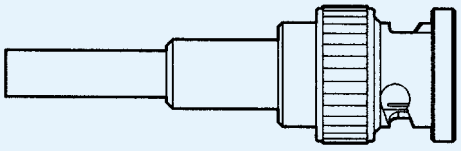


3. Supporting the cable and plug asembly in one hand, press the front insulator fully home using the assembly tool provided. A light pull on the cable will confirm the captivation of the center conductor.



4. Slide the ferrule over braid until it butts up to the back of the connector. Crimp in position using an ITT Cannon Crimp Tool and suitable die set (See table).

   Alternative method, using combined assembly/crimp tool
   Load the connector assembly into the combined assembly/crimp tool (see table) making sure that the center pin is aligned with the hole in the dielectric bushing and the ferrule aligned in the die. Close tool handles until ratchet releases. Allow tool handles to return to the open position and remove crimped connector assembly.



Cable	Cap Color	Cable Code	Die Size	Combined Assembly/ Crimp Tool Part Number
735A	Red	9019	4,52 (.178)	050-000-0030020
734	Dark Blue	9029	6,48 (.255)	050-000-0030040
M17/29-RG59/U	Light Blue	9039	6,48 (.255)	050-000-0030040
1694A	Black	9049	7,72 (.304)	050-000-0030010

Torque Wrenches

Jaw Size	Torque Nm (In. ozs.)	Part Number (USA)	Part Number (UK)
5,54 (.218)	0,42 - 0,49 (60 - 70)	050-000-0854080	T0854/8/A
5,54 (.218)	0,64 - 0,71 (90 - 100)	050-000-2854080	T0854/8/C
5,94 (.234)	0,42 - 0,49 (60 - 70)	050-000-0854090	T0854/9/A
5,94 (.234)	0,64 - 0,71 (90 - 100)	050-000-2854090	T0854/9/C
6,35 (.250)	0,56 - 0,64 (80 - 90)	050-000-1854100	T0854/10/K
7,92 (.312)	0,99 - 1,06 (140 - 150)	050-000-4854120	T0854/M8/E

This is not the entire range of Torque Wrenches. Contact Sales Department for details of other styles.

Crimp Tools and Die Sets

Description	Part Number (USA)	Part Number (UK)
Crimp Tool without Die Set	050-000-0000000	T1025/-
Die Set for Cables RG178/U, 196/U	050-000-0290000*	K29263 *2,67 (.105)
Die Set for Cables RG174/U, 316/U	050-000-0290000*	K29263 * 3,25 (.128)
Die Set for Cable RG142/U	050-000-0291000**	K29265 5,41 (.213)
Die Set for Cable RD316	050-000-0292000	T1025/9 3,84 (.151)
Die Set for Cables 2001, 3002, TZC75024		T1025/5 4,52 (.178)
Die Set for Cable 2002		T1025/6 5,18 (.204)
Die Set for Cable 2003		T1025/8 6,81 (.268)

This is not the entire range of Crimp Tools. Contact Sales Department for details of other styles.

	A/F Dimension
* 3 way die set	2,67 (.105) 3,25 (.128) 4,52 (.178)
** 2 way die set	3,25 (.128) 5,41 (.213)

SMA Tools

Description	Part Number
Universal Assembly Jig	T1848
Insulator Insertion Tool (Plugs)	T2508
Insulator Insertion Tool (Jacks)	T2509
Circlip Pliers	T0557/1
Center Conductor Pointing Tool for 3,58 (.141) Semi-Rigid Cable	T2297
Solderless Connector Compression Tool	050-000-0130000

SMZ Tools

Description	Part Number
Center Contact Crimp Tool for SMZ Connectors	T4519
Assembly Jig for Straight SMZ	T2887/A
Assembly Jig for Right Angle SMZ Connectors	T2921
Stripping Tool for 2001, 2002 & 2003 Cables	T4555
Stripping Tool for 3002 Cable	T4809
HDC Combination Extractor Tool	T4825
Extractor Tool 65A	T4653

QT™-BNC Assembly/Crimp Tools

For Cable Number	Part Number
Beldon 1694A	050-000-0030010
735A (AT&T)	050-000-0030020
734 and M17/29-RG59/U	050-000-0030040

What do you mean, ''Impedance''?

In every job speciality there are certain words and phrases used by the ''insiders'' which after a time become almost a language unique to that speciality. Radio frequency (RF) and microwave technology is a typical example of that condition.

The following pages provide some explanations, in an attempt to clarify some of the terms that are commonly used by engineers and sales staff at ITT Cannon.

The list is not comprehensive, but highlights many of the expressions commonly used. Should you have any comments or additions please contact us. Feedback will be appreciated.

1.0/2.3 - A miniature connector in both 50 and 75 Ω versions used for communications and instrumentation. 75 Ω now popular in telecommunications.

1.6/5.6 - A 75 Ω connector used extensively in telecommunication systems.

Anti-cocking - A mechanism to prevent a connector from mis-aligning.

Attenuation - Decrease in power due to resistance or mismatch in transmission line.

Back Mounted - When applied to a coaxial connector it is that connector mounted from the rear of a panel with the fixing nut on the outside.

Bandwidth - Is the distance between two frequencies over which a RF or microwave device is intended to work.

Between Series Adaptor - An adaptor used to connect two different generic types of connector.

Blind mate - Connectors which may be mated when out of view owing to their float mount facility.

BMA - A blind mate connector capable of working to 18 GHz; this range is covered by MIL spec style BMA.

BMB™ - A blind mate connector capable of working to 18 GHz. Not compatible with BMA.

BNC - Bayonet Nut Connector. Probably the most commonly used coaxial connector in professional electronics.

Braid - A weave of metal strands used as an electrical shield for an insulated conductor or group of conductors.

BS9210 - The generic British Standard specification covering coaxial connectors.

BT - British Telecom. Designation given to cable and connectors specified by this telecom operator.

Bulkhead mount - The type of connector fitted to a chassis using a single cut-out hole.

Cable retention - The mechanism that joins the connector to the cable.

Cable retention force - The axial force which a connector/cable join can withstand.

Captive - A component such as a contact which is held firmly in position.

Characteristic Impedance - That impedance at which the transmission line is intended to work. A change from the characteristic impedance along its length will cause mismatch and loss of power.

Clamp - The holding of a cable by use of a screw thread action.

Closed entry contact - A female contact which is designed to prevent insertion of a contact larger than that specified.

CMM - Self-aligning microminiature blind mate connectors with non-butting interface

Coaxial Cable - A transmission line where the one conductor is concentric inside another; often abbreviated to 'coax'.

Coaxial termination - A resistive element used to end a coaxial line in its characteristic impedance.

Coaxial terminator - A device for terminating coaxial cable to a PCB or bulkhead (purely a mechanical device and should not be confused with coaxial termination)

Coaxitube - Trade name for Precision Tube Inc.'s semi-rigid cable.

Conhex - Trade name covering SMB and SMC, both in 50 Ohm and 75 Ohm impedances (Discontinued).

Connector durability - The number of times a connector can be physically mated and still maintain its specified performance.

Contact resistance - The measurement of the DC electrical resistance between a pair of mated contacts. Usually specified as being measured after a given number of mating cycles.

Corona - A discharge of electricity caused by the ionisation of the air around a conductor just prior to total breakdown or flashover.

Crimp: - The action of distorting a metal tube to give intimate contact with a conductor; a good crimp should be gas tight and not be impacted by environmental change.

Crimp dies - The tool inserts which determine the shape of the distortion to create a consistently good crimp.

Crimp tool - The tool which holds crimp dies to apply the necessary force.

Cross talk - The amount of signal which may be transferred from one signal carrying line to an adjacent line.

Cut off frequency - The frequency at which the loss exceeds a predetermined level.

dB - Abbreviation for Decibel.

DDF - Digital Distribution Frame. Used in telecommunication exchanges.

Decibel (dB) - A unit of measurement of RF power loss.

Dielectric - The insulating medium which holds the center conductor concentric within the connector or cable.

Dielectric constant - The electrical value of the dielectric which determines the impedance in cables or connectors with constant diameters.

Dielectric withstanding voltage - The maximum voltage that a dielectric material can withstand without failure.

Direct solder - A common method of terminating connectors to semi-rigid cable by soldering the cable jacket to the connector.

Discontinuity - A dramatic change in characteristic impedance which gives rise to a reflected wave.

Dissipation - The unused or lost energy in a system e.g. heat.

Distortion - An unwanted change in a signal wave form.

Dummy load - A device connected to the end of a transmission line to absorb transmitted power and prevent reflected energy.

Dust cap - A mechanical device attached to the mating face of an unmated connector to prevent ingress of contaminants and provide protection against mechanical damage.

Duty factor - The way of deriving the average power.

Electromagnetic compatibility (EMC) - The ability of a device to operate within its intended environment without being effected by or generating electromagnetic interference (EMI).

EMI - Electro-magnetic interference (created by the field force surrounding a transmission line carrying RF power)

Engagement and separation forces - The forces required to mate and unmate a pair of connectors. The forces are usually specified as a max & min for each action.

Environmentally sealed - A connector that is provided with seals or other devices to prevent ingress of dust, moisture or other contaminants whilst mated which might impair performance.

Flexible cable - A coaxial cable where the outer conductor is flexible (usually braided).

Flexit - A flexible cable from ITT Cannon which has similar properties to semi-rigid.

Float mount - A mounting mechanism that allows the connector to move enabling compensation for axial and radial misalignment.

Fret corrosion - The increase in speed of oxidation created by two materials in intimate contact and subject to vibration.

Gang mounted - The mounting of multiple connectors on a single panel.

Gigahertz (GHz) - A measure of frequency representing 1 billion Hertz (cycles per second).

HDC - High Density Connector. A variant of SMZ connector.

Hermetic seal - The fixed half of a connector which is sealed against the passage of gas from one side of a bulkhead to another in the mated or unmated condition.

Impedance - See ''Characteristic impedance''.

In-series adaptor - An adaptor which enables the connection of two connectors of the same generic type.

Insertion loss - The loss of power due to a particular component in a transmission line (e.g. cable)

Insulation resistance - The electrical resistance between two conductors separated by an insulating medium.

Inter modulation - The mixing of two or more frequencies which are not intended to mix.

Interface - The two surfaces of a connector which come into intimate contact when the two halves are mated.

Inter-series adaptor - See ''Between Series Adaptor''.

Isolation - The measure of interaction between two or more transmission lines.

Jack - One half of a mating pair of connectors. The jack interface normally goes inside the plug interface.

Line stretcher - Alternative name for Phase Adjuster.

MCX - A miniature connector with a size between the SMB & SSMB.

Mean power - The mean value of the rate at which energy is transmitted from one place to another.

Micro strip - A Transmission line consisting of a flat conductor on a dielectric above a single ground plane. (The ground plane is frequently a metalised face of the dielectric).

Microwave - Very short electromagnetic waves. Frequency range above 1 GHz.

MIL-C-39012 - The generic specification covering USA military coaxial connectors.

MIL-C-17 - The generic Mil spec covering coaxial cables.

Mismatch - The condition in which the impedance of the source and load are not the same. This reduces power transfer and causes reflections.

Mounting plan - The design of the PCB or panel cut-out used to mount the connector.

MPC Coax - Microminiature coaxial connectors for mobile telephone or similar applications.

N Connector - This was the first true microwave connector capable of working to 18GHz, initially designed for test applications.

Nanohex - Trade name covering SSMB & SSMC. (Discontinued).

Noise - An external electromagnetic signal which interferes with the desired signal.

Non-captive - A component such as a contact which does not have a retention feature.

Ohm - A measure of DC resistance or RF impedance represented by Ω.

Panel mount - The type of connector fitted to a chassis using a 2 or 4 hole flange mounting.

Passivation - This is a surface treatment applied primarily to stainless steel. The process removes contaminating iron particles and produces a passive surface.

PCB - Printed Circuit Board.

Peak power - Is the maximum power which may be handled by a connector or cable.

Phase adjuster - A device to change the electrical length and therefore the relative phase of a microwave signal. Sometimes referred to as a Line Stretcher.

Plug - One half of a mating pair of connectors. The plug interface normally goes outside the jack interface.

Posi-Lock - A positive locking device by means of a latching sleeve. This prevents accidental disconnection of connector.

POSNS - Abbreviation for ''positions''.

Press-in mount - A connector which is mounted into a panel using a knurled body.

PTFE - Abbreviation of polytetrafluorethylene. This is the most commonly used dielectric (insulator) used in professional coaxial connectors.

Push-on - See ''Slide-on''.

Push-Pull - The mating engagement of latch sleeve connectors preventing accidental disengagement.

PWB - Printed Wiring Board.

QPL - Qualified Parts List. Parts approved to MIL-C-39012 specification.

QT™ - A range of connectors developed by ITT Cannon giving Quick Termination and therefore reduced installation cost.

Receptacle - A term used to describe a connector usually bulkhead or PCB mounted.

Return loss - A reason for loosing RF energy due to signals being reflected due to a mismatch in a transmission line.

RF - An abbreviation for Radio Frequency.

RFI - An abbreviation for Radio Frequency Interference. (Electronic Pollution).

RF leakage - The RF power lost from a transmission line or device. Measured in dB.

RG - The traditional prefix for MIL. spec. coaxial cables.

Screw Lock - An alternative locking mechanism to prevent accidental disconnection of connectors.

Screw-on - The mating action of connectors which are joined using a screw thread. e.g. SMC.

Sealflex 2™ - An ITT Cannon trade name for a flexible microwave cable assembly which has a performance similar to semi-rigid cable.

Semi-rigid cable - A coaxial cable where the outer conductor is a solid metal tube.

SHV - A high voltage coax connector.

SIS™ - ITT Cannon range of blind-mate slide-on connectors.

Skin effect - The tendency of alternating currents to flow near to the surface of a conductor; this increases resistance and becomes more marked the higher the frequency.

Slide-on - The mating action of connectors which push together using low force. Also known as blind mate. e.g. BMB.

SMA - A microwave connector with normal operating frequency of 18GHz (some have been extended to 22GHz).

SMB - A snap together miniature coaxial connector normally restricted to 4 GHz.

SMC - A miniature coaxial connector of the same size as SMB but secured by means of a threaded coupling nut.

SMD - Sometimes used as an abbreviation for slide-on variants of SMB. This is a misnomer, the more common use is for Surface Mount Device.

SMS - Rack and panel slide-on connectors with the same line size as SMA. These are covered by MIL. spec. BMB.

SMZ - A 75 Ω snap-on connector previously known as 75 Ω Conhex. Also known as Type 43.

Snap-on - A term used to describe the mating action of SMB and SSMB connectors.

Solderless SMA - An SMA connector that can be connected to semi-rigid cable by compressing the inner body rather than by soldering. (sometimes referred to as semi-rigid 'crimp' connectors.

SSIS™ - ITT Cannon range of microminiature blind-mate slide-on connectors.

SSMA - A miniature version of the SMA. This range has a theoretical frequency capability of 40 GHz, however has limitations regarding its physical strength.

SSMB - A micro-miniature snap-on coupling coaxial connector (smaller SMB).

SSMC - A micro-miniature threaded coupling coaxial connector (smaller SMC).

Stripline - A method of building a microwave circuit. The circuitry is sandwiched between 2 ground planes. Sometimes referred to as Tri-plate.

Teflon - Du Pont trade name for PTFE.

TEM transmission line - A high performance cable assembly.

Tensile strength - The greatest force a device can withstand without tearing or pulling apart. This is frequently the method of determining the effectiveness of a crimp.

TEP 1E - A British Telecom Equipment Practice which uses connectors based on the ITT Cannon 75 Ω Conhex. Referred to as ''SMZ-Type 43''.

Teplock - A method of rapid connect/disconnect on Digital Distribution Frames.

TNC - Thread Nut Connector same size as BNC; the only obvious difference is the coupling nut.

Tri-plate - See Stripline.

Type 43 connectors - The SMZ coaxial connector used extensively in telecommunication systems.

UG symbol - Used to indicate a connector made to US government spec.

UHF - An old style coaxial connector, recently used on larger portable cellular radio receivers as the antenna connector.

Voltage standing wave ratio (VSWR) - A way of expressing the resultant loss of power as a result of signal reflections due to discontinuity.

Previous Part Number	New Part Number	Previous Part Number	New Part Number	Previous Part Number	New Part Number
050-051-0000	B50-051-0000	051-024-3875	B51-024-9399	051-424-3196	A51-424-3196
050-051-9019	B50-051-9019	051-024-9399	B51-024-9399	051-427-3196	A51-427-3196
050-053-0000	B50-053-0000	051-027-3875	051-027-9399	051-428-3188	A51-428-3188
050-053-9019	B50-053-9019	051-051-0000	B51-351-0000	051-428-3196	A51-428-3196
050-328-3188	B50-328-3188	051-051-9029	B51-051-9029	051-428-3875	A51-428-3875
050-624-9142	A50-624-9142	051-051-9999	B51-351-0000	051-428-9399	A51-428-3875
050-624-9188	A50-624-9188	051-053-0000	B51-053-0000	051-443-9009	051-443-0000
050-624-9399	A50-624-9875	051-053-0349	B51-053-0000	051-451-0000	A51-451-0000
050-628-9399	050-628-9875	051-053-9029	B51-053-9029	051-451-9019	A51-451-0000
050-645-4504	A50-645-4504	051-124-3187	051-124-9309	051-453-0000	A51-453-0000
050-645-4520	A50-645-4520	051-127-3187	051-127-9309	051-453-9019	A51-453-0000
050-645-4526	A50-645-4526	051-151-0000	051-151-9019	051-911-9072	051-C11-9072
050-645-4528	A50-645-4528	051-153-0000	051-153-9089	051-923-9188	051-C23-9188
050-645-4540	A50-645-4540	051-153-9069	051-153-9089	051-928-9019	051-C28-9019
050-645-4575	A50-645-4575	051-311-3188	B51-011-0000	051-928-9029	051-C28-9029
051-007-0000	B51-007-0000	051-328-0029	B51-328-3188	051-951-9039	051-C51-9039
051-007-3187	B51-007-0000	051-328-0059	B51-328-9399	055-607-2203	055-607-9173
051-007-3196	B51-007-3196	051-328-3188	B51-328-3188	055-607-3702	055-607-9172
051-011-0000	B51-011-0000	051-328-3196	B51-328-3196	B51-451-0000	051-451-0000
051-024-0000	B51-024-0000	051-328-3875	B51-328-9399	C51-428-3196	A51-428-3196
051-024-3196	B51-024-3196	051-328-9399	B51-328-9399		

QPL Part Number Cross Reference

US Government Designation	ITT Cannon Part Number	Cat.	Cable Types	US Government Designation	ITT Cannon Part Number	Cat.	Cable Types
M39012/55-3006	050-607-5506899	A	RG178/U	M39012/73B0009	050-324-7309229	B	RG174/U, 316/U
M39012/55-3007	050-607-5507899	A	RG174/U, 316/U	M39012/74-0003	050-308-7403229	A	RG178/U
M39012/55-3009	050-607-5509899	A	RG58/U, 142/U, 223/U	M39012/74-0004	050-308-7404229	A	RG174/U, 179/U, 316/U
M39012/55-3026	050-624-5526899	C	RG174/U, 316/U	M39012/74B0009	050-325-7409229	B	RG174/U, 316/U
M39012/55-3028	050-624-5528899	C	RG142/U, 223/U	M39012/75-0003	050-311-7503229	A	RG178/U
M39012/55-3107	050-607-5517899	A	RG174/U, 316/U	M39012/75-0004	050-311-7504229	A	RG174/U, 179/U, 316/U
M39012/55-3126	050-624-5566899	C	RG174/U, 316/U	M39012/75B0008	050-328-7508229	B	RG178/U
M39012/55-3128	050-624-5568899	C	RG142/U, 223/U	M39012/75B0009	050-328-7509229	B	RG174/U, 316/U
M39012/55B3019	050-624-5519899			M39012/76-0003	050-310-7603229	A	RG178/U
M39012/56-3007	050-611-5607899	A	RG174/U, 316/U	M39012/76-0004	050-310-7604229	A	RG174/U, 179/U, 316/U
M39012/56-3026	050-628-5626899	C	RG174/U, 316/U	M39012/76B0009	050-327-7609229	B	RG174/U, 316/U
M39012/56-3028	050-628-5628899	C	RG142/U, 223/U	M39012/77-0001	050-043-7701229		
M39012/56-3029	050-628-5629899	C	RG58/U, 303/U	M39012/79B3002	050-607-7902899	B	RG402/U
M39012/56-3126	050-628-5666899	C	RG174/U, 316/U	M39012/79B3101	050-607-7911899	B	RG405/U
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The material I received did not contain the information I required. Please send further information, as indicated below, immediately. ☐

I need information in more detail than the material I have received. Please have a Product Engineer call me immediately. ☐

I need information regarding availability, pricing, or my nearest sales outlet. Please have a Customer Service Representative call me immediately. ☐

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- D*M/D*MA
- D*
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- D*JK
- D*JT
- D*PF
- D*T
- D*U
- D*W
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LAN Connect Data Components
Tempus CBC20 2.0 Millimeter Connectors
DIN 41612 Connectors
Smart Card Connectors
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Audio Connectors
Hermetic Connectors
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DL Zero Insertion Force Connectors
Trident Connectors
Neptune Connectors
Fibre Optic Connectors
Microminiature Connectors
MPC Connectors
Switches
Structured Networking Systems

THIS NOTE MUST BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOG. FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/CATALOG COULD RESULT IN HAZARDOUS SITUATIONS.

1 MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2 FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionisation and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalogue are exceeded and can cause breakdown of insulation and hence electric shock.

If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonisation of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3 HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers.

Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4 DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5 APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector.

Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Further the contact resistance of the connectors should be measured within the electrical circuit in order to identify high resistances which result in excessive connector heating. Always use the correct application tools as specified in the Data Sheet/Catalog.

Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage

The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

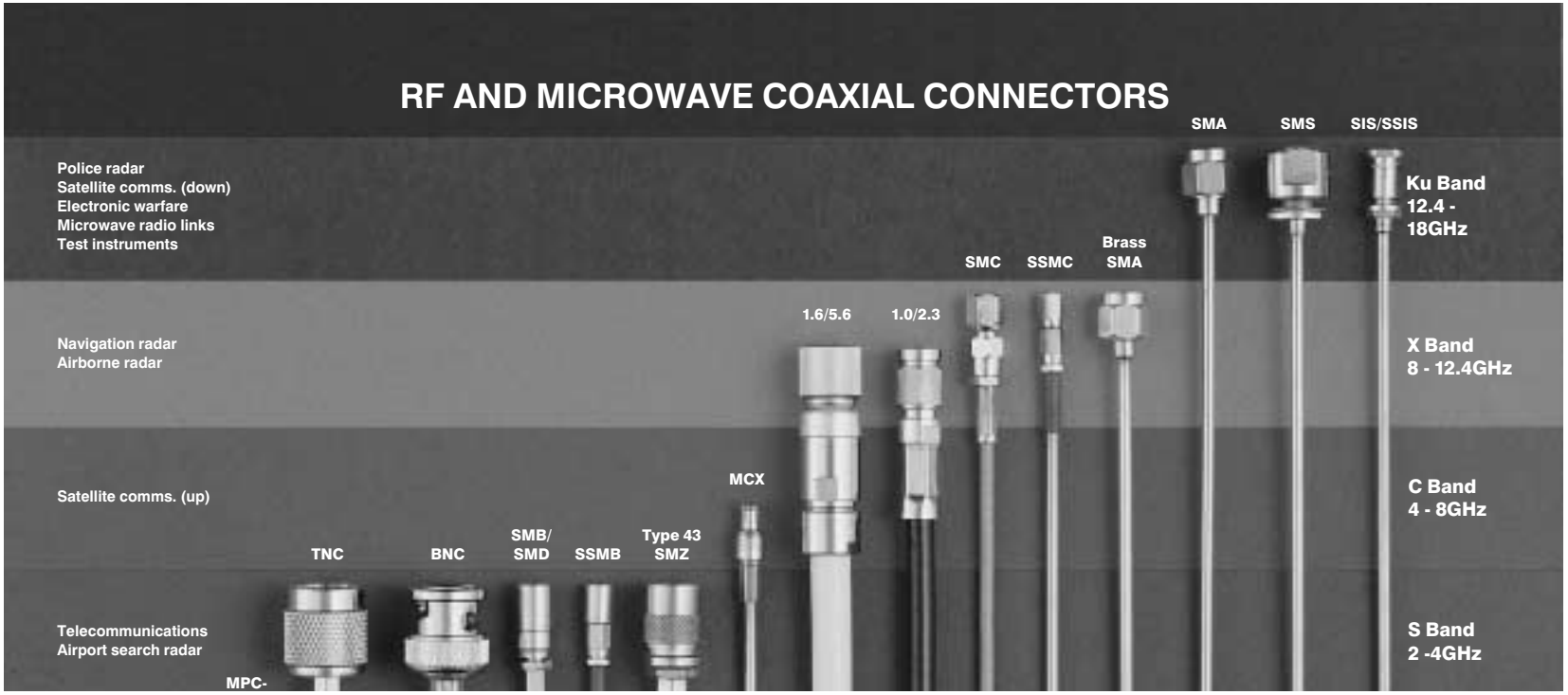
All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

ITT Cannon continuously endeavours to improve their products. Therefore, ITT Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

(iv) Harnessing and Assembly Instructions

If applicable, our special harnessing and/or assembly instruction has to be adhered to. This is provided on request.


RF AND MICROWAVE COAXIAL CONNECTORS
Police radar
Satellite comms. (down)
Electronic warfare
Microwave radio links
Test instruments
Navigation radar
Airborne radar
Satellite comms. (up)
Telecommunications
Airport search radar
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TNC
BNC
SMB/
SMD
SSMB
Type 43
SMZ
MCX
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1.0/2.3
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ITT Cannon Worldwide Facilities

Austria:
Afrikanergasse 3
1020 Vienna
FAX: 43.1.2160948 PH: 43.1.2160947

Benelux:
Rue Col. Bourg Str. 105A
1140 Brussels, Belgium
FAX: 32.2.7269201 PH: 32.2.7267594

China:
No. 24, Block 2
Taohuawu New District
Zhenjiang, Jiangsu
P.R.C.
FAX: 86.511.442.8616 PH: 86.511.443.3399

Denmark:
Park Allé 287 A
2605 Brøndby
FAX: 45.43.43.58.58 PH: 45.43.45.52.88

Finland:
Sarkatie 2
01720 Vantaa
FAX: 358.07003.9188 PH: 358.07003.9180

France:
2, Ave Sablons Bouillants
77109 Meaux Cedex
FAX: 33.1.64.33.16.82 PH: 33.1.64.33.48.05

Germany:
Postfach 11 20
71365 Weinstadt (letters)
Cannonstrasse 1
71384 Weinstadt (parcels)
FAX: 49.7151.699.217 PH: 49.7151.699.0

Hong Kong:
906 New World Office Building
West Wing
20 Salisbury Road
Tsim Sha Tsui, Kowloon
FAX: 852.2732.2919 PH: 852.2732.2720

Israel:
Aro-Tech
14 Hamashot St., P.O.B. 44 47
75143 Rishon Lezion
FAX: 972.3.951.31.01 PH: 972.3.951.30.99

Italy:
Via Panzeri 10
20123 Milano
FAX: 39.2.8372036 PH: 39.2.58180.1

Japan:
5362-1, 5-chome, Hibarigaoka
Zama-shi, Kanagawa 228
FAX: 81.462.57.1680 PH: 81.462.57.2010

Korea:
620, Changkang Bldg.
#22, Dohwa-dong, Mapo-ku
Seoul
FAX: 82.2.717.7330 PH: 82.2.702.7111

Norway:
Frank El-Mek A/S
Postboks 42, Smestad
0309 Oslo
FAX: 47.22.50.32.05 PH: 47.22.50.70.20

Spain:
Edificio Italia 1 a Planta
Parque Empresarial San Fernando
28831 San Fernando de Henares
Madrid
FAX: 34.1.656.16.79
FAX: 34.1.656.15.83 PH: 34.1.656.03.11

Sweden:
VÅRFRU, Kävra
74591 Enköping
FAX: 46.171.413.181 PH: 46.171.413.181

Switzerland:
Herzogenmühle 18
8304 Wallisellen PH: 41.1.830.3888
FAX: 41.1.830.3104 PH: 41.1.830.3613

United Kingdom:
Jays Close, Viables Estate
Basingstoke, Hants, RG22 4BW
FAX: 44.1256.23356 PH: 44.1256.311200

United States:
Military/Aerospace
666 E. Dyer Road
Santa Ana, CA 92705-5684
FAX: 714.754.2142 PH: 714.557.4700

Commercial/Industrial
1851 E. Deere Ave
Santa Ana, CA 92705-5729
FAX: 714.757.8324 PH: 714.261.5300

Internet:
http://www.ittcannon.com

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