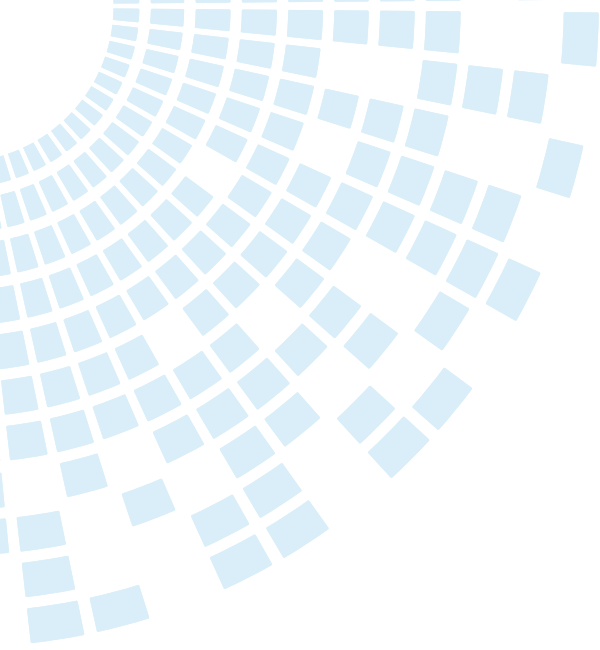




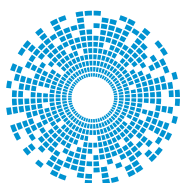
THE DATASHEET OF
142-9701-801





JOHNSON®

Non Magnetic Connectors Product Catalog



cinch
CONNECTIVITY SOLUTIONS
a bel group

belfuse.com/cinch

NON-MAGNETIC RF CONNECTORS

Introduction



Johnson's Non-Magnetic Connector Additions Offer Solutions to MR Imaging Technology

Johnson, a product line of Cinch Connectivity Solutions, has expanded the connector product groups in its popular line of Non-Magnetic RF coaxial connectors and cable assemblies.

MCX and MMCX micro-miniature connectors have been added to satisfy the needs of the RF coil manufacturers that are building smaller coils for MRI equipment. Customized flex coils and array coils can image smaller parts of the body such as wrists, feet, hands and other appendages.

The Non-Magnetic MCX and MMCX is the perfect micro-miniature connector for small multichannel coil packages as they provide a positive snap-on coupling design with high mating cycles for rugged, high density connectivity.

The Type N Non-Magnetic connector provides a perfect RF solution for high Tesla fields considered for future designs. These deep tissue MR images will require the rugged interface of the N connector as well as the tri-alloy plating to eliminate inter-modulation issues.

All the connectors in Johnson's Non-Magnetic line are made from high purity copper alloys assuring no ferrous materials are in the connectors manufactured. Cinch Connectivity Solutions continues to work with our customers to develop new solutions as the MR industry transitions to high-end field applications and improved resolution at greater physical depths within the body.

Products are offered through authorized distributors and international sales channels including a direct sales force and a network of manufacturers' representatives. For more information, please call (800) 247-8256.

About Johnson

Cinch Connectivity Solutions, located in Waseca, MN, manufactures Johnson® RF Connectors such as Ultra-miniature (UMC), Micro-miniature (MCX, MCX 75, MMCX and SMP), Sub-miniature (SMA, SMB, SMB Mini-75 Ohm, SMK) and Medium (Type N) in the most popular styles including PC Board Mount, End Launch, Bulkhead Mount and Cable Mounts (Flexible, Semi-rigid and Conformable).

Table of Contents

| | |
|--|----|
| MMCX Non-Magnetic RF Connectors | 2 |
| MCX Non-Magnetic RF Connectors | 6 |
| SMA Non-Magnetic RF Connectors | 11 |
| SMB Non-Magnetic RF Connectors | 15 |
| Type N Non-Magnetic RF Connectors | 19 |
| Assembly Instructions | 22 |
| The Johnson Combination | |
| MRI Connectors and Modular Customization | 30 |
| Competitor Cross Reference | 31 |

NON-MAGNETIC RF CONNECTORS

MMCX Non-Magnetic RF Connectors



ELECTRICAL SPECIFICATIONS

| | | | |
|--|---|----------------------------------|-------------------------------------|
| Impedance: | 50 Ohms | | |
| Frequency Range | 0-6 GHz | | |
| VSWR: (f = GHz) | | Straight Cable Connectors | Right Angle Cable Connectors |
| | .047 dia flexible | 1.20 | 1.14 + .07f |
| | RG-178, RG-316, RG-316 DS | 1.20 | 1.25 |
| Working Voltage | 170 VRMS at sea level | | |
| Dielectric Withstanding Voltage | 500 VRMS at sea level | | |
| Insulation Resistance | 1000 megohms minimum | | |
| Contact Resistance (milliohms maximum) | | Initial | After Environmental |
| | Center Contact (straight cabled connectors, uncabled receptacles) | 5.0 | 8.0 |
| | Center Contact (right angle cabled connectors) | 5.0 | 15.0 |
| | Outer Contact | 1.0 | 1.5 |
| | Braid to Body | 1.5 | N/A |
| Corona Level: | 190 volts min at 70,000 feet | | |
| Insertion Loss(dB maximum, tested at 1 GHz) | | | |
| | Straight Cable Connectors | | 0.1 |
| | Right Angle Cable Connectors | | 0.2 |
| | Uncabled Receptacles | | N/A |
| RF Leakage (dB minimum tested at 2.5 GHz) | | | |
| | Flexible Cable Connectors | | -60 dB |
| RF High Potential Withstanding Voltage | tested at 4 and 7 MHz | | |
| | VRMS minimum | | 400 |

MECHANICAL SPECIFICATIONS

| | | | |
|--------------------------|--|---------------------------|-----------------------|
| Engagement Design | Series MMCX | | |
| Engagement Force | 8 lbs. max axial engagement, 1.4 lbs. min axial disengagement | | |
| Contact Retention | 2.0 pounds min. axial force, 1 inch-ounce min. torque (uncabled receptacles) | | |
| Cable Retention | | Axial Force* (lbs) | Torque (in-oz) |
| | Connectors for .047 flexible | 3.5 | N/A |
| | Connectors for RG-178 | 7.0 | N/A |
| | Connectors for RG-316 | 20.0 | N/A |
| | Connectors for RG-316 DS | 25.5 | N/A |
| | Connectors for .086 Semi-Rigid | 30.0 | 16 |
| | *Or cable breaking strength whichever is less. | | |
| Durability: | 500 cycles minimum | | |

ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012)

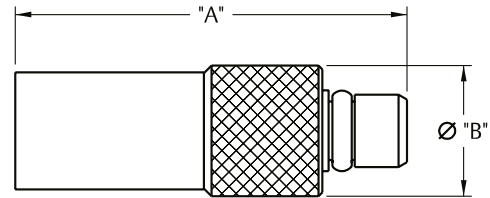
| | |
|----------------------------|--|
| Temperature Range | -65°C to +165°C |
| Thermal Shock | MIL-STD-202, Method 107, Condition C (Except -55°C to 115°C) |
| Corrosion | MIL-STD-202, Method 101, Condition B |
| Shock | MIL-STD-202, Method 213, Condition B |
| Vibration | MIL-STD-202, Method 204, Condition D |
| Moisture Resistance | MIL-STD-202, Method 106 |

NON-MAGNETIC RF CONNECTORS



MMCX Non-Magnetic RF Connectors For Flexible Cable and PC Mount

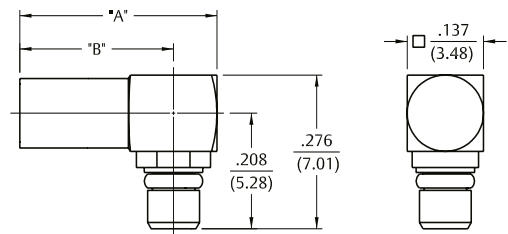
Straight Crimp Type Plug - Solder or Crimp Contact - Captivated Contact



| Cable Type | Gold Plated | "A" | "B" | Termination |
|-------------------------|--------------|--------------|-------------|--------------|
| RG-316/U, 188, 161, 174 | 135-9403-001 | .509 (12.93) | .173 (4.39) | Crimp Sleeve |
| RG-178/U, 196 | 135-9402-001 | .462 (11.73) | .137 (3.48) | Crimp Insert |
| .047 Dia. Flex | 135-9436-001 | .462 (11.73) | .137 (3.48) | Crimp Insert |

See assembly instructions page 22

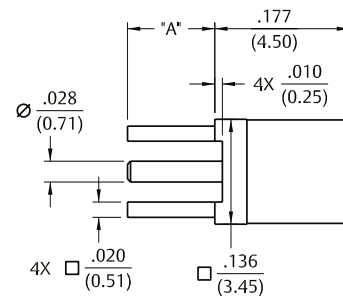
Right Angle Crimp Type Plug - Captivated Contact



| Cable Type | Gold Plated | "A" | "B" | Termination |
|-----------------------------------|--------------|--------------|-------------|--------------|
| RG-316/U, 188, 187, 179, 161, 174 | 135-9403-101 | .412 (10.46) | .334 (8.48) | Crimp Sleeve |
| RG-178/U, 196 | 135-9402-111 | .412 (10.46) | .334 (8.48) | Crimp Sleeve |
| .047 Dia. Flex | 135-9436-101 | .354 (8.99) | .276 (6.98) | Crimp Insert |

See assembly instructions page 23

Straight Jack Receptacle



| Gold Plated | "A" |
|--------------|-------------|
| 135-9701-201 | .115 (2.92) |
| 135-9701-211 | .068 (1.73) |

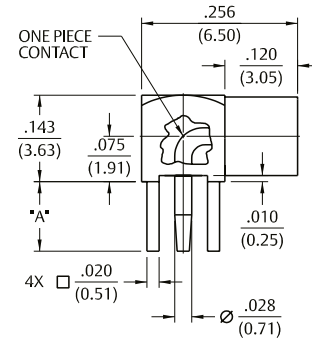
Mounting hole layout figure 1 on page 5

NON-MAGNETIC RF CONNECTORS



MMCX Non-Magnetic RF Connectors For PC Mount

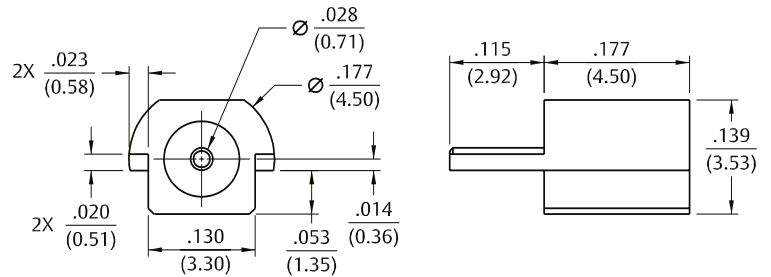
Right Angle Jack Receptacle



| Gold Plated | "A" |
|--------------|-------------|
| 135-9701-301 | .155 (3.94) |
| 135-9701-311 | .068 (1.73) |

Mounting hole layout figure 1 on page 5 below

End Launch Jack Receptacle - Surface Contact



| Gold Plated | Packaging |
|--------------|-----------------------------|
| 135-9711-801 | Stock |
| 135-9711-802 | Tape and Reel 1000 pcs/reel |

Recommended land pattern figure 2 on page 5

Mounting Hole Layout

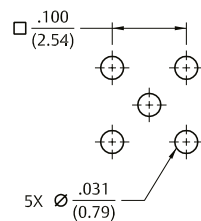


Fig 1

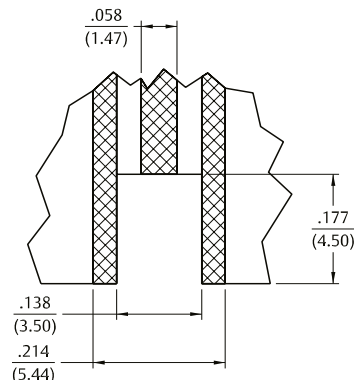


Fig 2

NON-MAGNETIC RF CONNECTORS

MCX Non-Magnetic RF Connectors



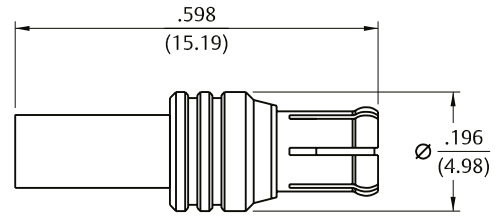
| ELECTRICAL SPECIFICATIONS | | | |
|--|--|---------------------------|------------------------------|
| Impedance: | | 50 Ohms | |
| Frequency Range | | 0-6 GHz | |
| VSWR: (f = GHz) | | Straight Cable Connectors | Right Angle Cable Connectors |
| | RG-178 cable | 1.17 + .09f | 1.07 + .06f |
| | RG-316 cable | 13 + .04f | 1.07 + .04f |
| | Uncabled Receptacles | N/A | N/A |
| Working Voltage (VRMS maximum) | Connectors for Cable Type | Sea Level | 70K Feet |
| | RG-178 | 250 | 65 |
| | RG-316 | 335 | 85 |
| Dielectric Withstanding Voltage (VRMS minimum at sea level) | Connectors for RG-178, Uncabled Receptacles | 750 | |
| | Connectors for RG-316, Uncabled Receptacles | 1000 | |
| Insulation Resistance | 10,000 megohms minimum | | |
| Contact Resistance (milliohms maximum) | | Initial | After Environmental |
| | Center Contact (straight cabled connectors, uncabled receptacles) | 5.0 | 8.0 |
| | Center Contact (right angle cabled connectors) | 5.0 | 15.0 |
| | Outer Contact | 1.0 | 1.5 |
| | Braid to Body | 1.0 | N/A |
| Corona Level (Volts minimum at 70,000 feet) | Connectors for RG-178 Uncabled Receptacles | 190 | |
| | Connectors for RG-316, Uncabled Receptacles | 250 | |
| Insertion Loss (dB maximum, tested at 1 GHz) | Straight Cable Connectors | 0.1 | |
| | Right Angle Cable Connectors | 0.2 | |
| | Uncabled Receptacles | N/A | |
| RF Leakage (dB minimum tested at 2.5 GHz) | Cable connectors | -55 | |
| | Uncabled receptacles | N/A | |
| RF High Potential Withstanding Voltage | (VRMS minimum, tested at 4 and 7 MHz) | | |
| | Connectors for RG 178 | 500 | |
| | Connectors for RG 316 | 700 | |
| | Uncabled Receptacles | 600 | |
| MECHANICAL SPECIFICATIONS | | | |
| Engagement Design | Compatible with CECC 22220, Series MCX | | |
| Engagement / Disengagement Force | 5.6 pounds maximum axial force / 8 pounds maximum axial force, 1 pound min | | |
| Contact Retention | 2.3 pounds min. axial force (captivated contacts); 1 inch-ounce min. torque (uncabled receptacles) | | |
| Cable Retention | | Axial Force* (lbs) | Torque (in-oz) |
| | Connectors for RG178 | 10 | N/A |
| | Connectors for RG316 | 20 | N/A |
| | Connectors for RG316 DS | 25 | N/A |
| | *Or cable breaking strength whichever is less. | | |
| Durability: | 500 cycles minimum | | |
| ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012) | | | |
| Temperature Range | -65°C to +165°C | | |
| Thermal Shock | MIL-STD-202, Method 107, Condition C (Except -55°C to 115°C) | | |
| Corrosion | MIL-STD-202, Method 101, Condition B | | |
| Shock | MIL-STD-202, Method 213, Condition B | | |
| Vibration | MIL-STD-202, Method 204, Condition D | | |
| Moisture Resistance | MIL-STD-202, Method 106 | | |

NON-MAGNETIC RF CONNECTORS

MCX Non-Magnetic RF Connectors



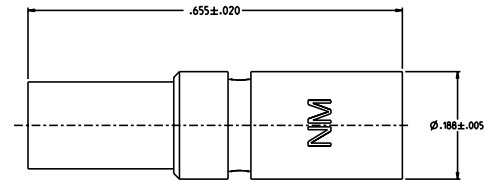
Straight Crimp Type Plug - Solder or Crimp Contact - Captivated Contact



| Cable Type | Gold Plated |
|--------------------|--------------|
| RG-178 | 133-9402-001 |
| RG-316/U, 188, 174 | 133-9403-001 |
| RG-316 DS, 188 DS | 133-9404-001 |

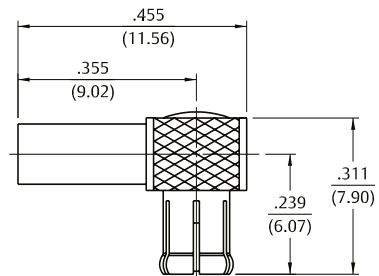
See assembly instructions page 24

Straight Crimp Type Jack Receptacle



| Cable Type | Gold Plated |
|------------|--------------|
| RG-316 | 133-9303-001 |

Right Angle Crimp Type Plug - Captivated



| Cable Type | Gold Plated | Silver Plated |
|--------------------|--------------|---------------|
| RG-316/U, 188, 174 | 133-9403-101 | 133-9403-104 |
| RG-316 DS, 188 DS | 133-9404-101 | |
| RG-178/U, 196 | 133-9402-101 | |

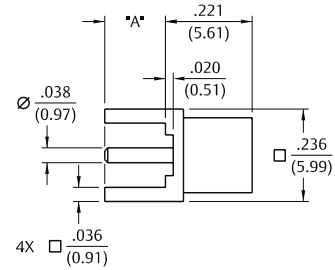
See assembly instructions page 24

NON-MAGNETIC RF CONNECTORS



MCX Non-Magnetic RF Connectors For Flexible Cables

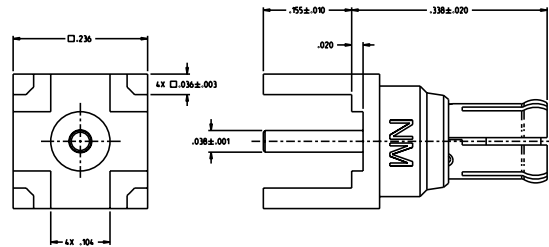
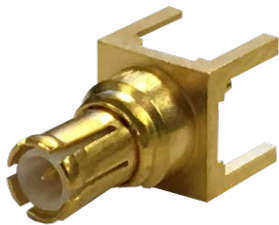
Straight Jack Receptacle



| Gold Plated | Silver Plated | "A" |
|--------------|---------------|-------------|
| 133-9701-201 | 133-9701-204 | .155 (3.94) |
| 133-9701-211 | | .110 (2.79) |

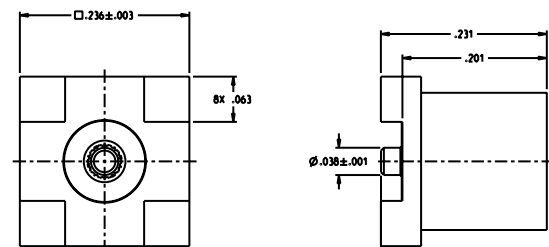
Mounting hole layout figure 4 on page 10

Straight Plug Receptacle, PCB Mount



| Gold Plated |
|--------------|
| 133-9801-201 |

Straight Surface Mount, Jack Assembly



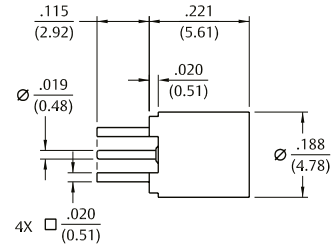
| Gold Plated |
|--------------|
| 133-9711-201 |

NON-MAGNETIC RF CONNECTORS



MCX Non-Magnetic RF Connectors For Flexible Cables

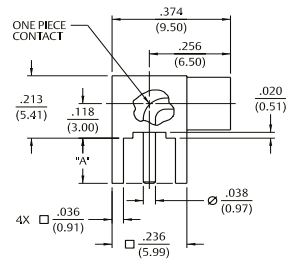
Straight Jack Receptacle - .100" Layout



| |
|--------------------|
| Gold Plated |
| 133-9701-231 |

Mounting hole layout figure 3 on page 10

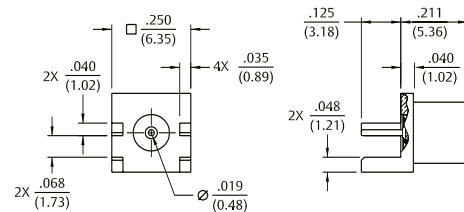
Right Angle Jack Receptacle



| | | |
|--------------------|----------------------|-------------|
| Gold Plated | Silver Plated | "A" |
| 133-9701-301 | 133-9701-304 | .155 (3.94) |
| 133-9701-311 | | .110 (2.79) |

Mounting hole layout figure 4 on page 10

End Launch Jack Receptacle - Round Contact



| | |
|--------------------|------------------------|
| Gold Plated | Board Thickness |
| 133-9701-801 | .062 (1.57) |

MCX Non-Magnetic RF Connectors For PC Mount

Mounting Holes Layout

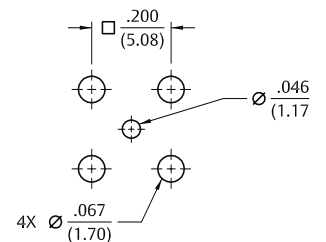
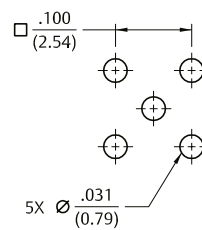


Fig 3

Fig 4

NON-MAGNETIC RF CONNECTORS



SMA Non-Magnetic RF Connectors

| ELECTRICAL SPECIFICATIONS | | | |
|--|---|---------------------------|--|
| Impedance: | | | 50 Ohms |
| Frequency Range | Flexible cable connectors Uncabled Receptacles | | 0-12.4 GHz 0-18.0 GHz |
| VSWR: (f = GHz) | | Straight Cable Connectors | Right Angle Cable Connectors |
| | RG-316 | 1.15 + .02f | 1.15 + .03f |
| | RG-58 | 1.15 + .01f | 1.15 + .02f |
| | Uncabled Receptacles | N/A | N/A |
| Working Voltage (VRMS maximum) | Connectors for Cable Type | Sea Level | 70K Feet |
| | RG-316 | 250 | 65 |
| | RG-58, Uncabled Receptacles | 335 | 85 |
| Dielectric Withstanding Voltage (VRMS minimum at sea level) | | | |
| | Connectors for RG-316 | | 750 |
| | Connectors for RG-58, Uncabled Receptacles | | 1000 |
| Insulation Resistance | 5000 megohms minimum | | |
| Contact Resistance (milliohms maximum) | | Initial | After Environmental |
| | Center Contact (straight cabled connectors, uncabled receptacles) | 3.0 | 4.0 |
| | Center Contact (right angle cabled connectors) | 4.0 | 6.0 |
| | Outer Contact | 2.0 | N/A |
| | Braid to Body | 0.5 | N/A |
| Corona Level (Volts minimum at 70,000 feet) | | | |
| | Connectors for RG-316 | | 190 |
| | Connectors for RG-58, Uncabled Receptacles | | 250 |
| Insertion Loss (dB maximum, tested at 1 GHz) | | | |
| | Straight Cable Connectors | | 0.06 \sqrt{f} (GHz), tested at 6 GHz |
| | Right Angle Cable Connectors | | 0.15 \sqrt{f} (GHz), tested at 6 GHz |
| | Uncabled Receptacles | | N/A |
| RF Leakage (dB minimum tested at 2.5 GHz) | | | |
| | Cable connectors | | -60 dB |
| | Uncabled Receptacles | | N/A |
| RF High Potential Withstanding Voltage | (VRMS minimum, tested at 4 and 7 MHz) | | |
| | Connectors for RG-316 | | 500 |
| | Connectors for RG-58, Uncabled receptacles | | 670 |

| MECHANICAL SPECIFICATIONS | | | |
|---|--|--------------------|----------------|
| Engagement Design | MIL-STD-348, Series SMA | | |
| Engagement / Disengagement Force | 2 inch-pounds maximum | | |
| Contact Retention | 6 lb minimum axial force (captivated contacts); 4 inch-ounce minimum torque (uncabled receptacles) | | |
| Mating Torque | 7 to 10 inch-pounds | | |
| Coupling Proof Torque | 15 inch-pounds minimum | | |
| Coupling Nut Retention | 60 pounds minimum | | |
| Cable Retention | | Axial Force* (lbs) | Torque (in-oz) |
| | Connectors for RG-316 | 20 | N/A |
| | Connectors for RG-58 | 40 | N/A |
| | *Or cable breaking strength whichever is less. | | |
| Durability: | 500 cycles minimum | | |

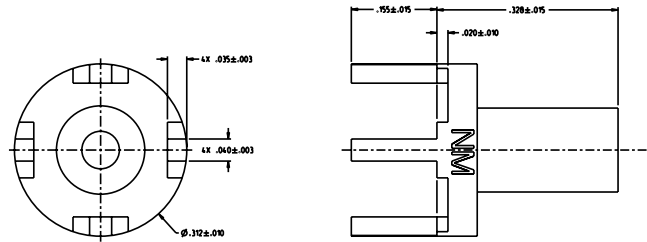
| ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012) | |
|--|--------------------------------------|
| Temperature Range | -65°C to +165°C |
| Thermal Shock | MIL-STD-202, Method 107, Condition B |
| Corrosion | MIL-STD-202, Method 101, Condition B |
| Shock | MIL-STD-202, Method 213, Condition I |
| Vibration | MIL-STD-202, Method 204, Condition D |
| Moisture Resistance | MIL-STD-202, Method 106 |

NON-MAGNETIC RF CONNECTORS



SMA Non-Magnetic RF Connectors For Flexible and Semi-Rigid Cable

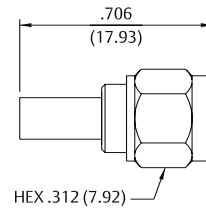
Straight Solder Type Plug, Semi Rigid Cable



Gold Plated

142-9003-201

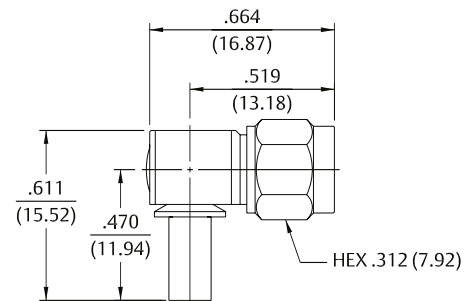
Straight Crimp Type Plug (3-piece) - Captivated Contact



| Cable Type | VSWR & Freq. Range | Gold Plated |
|--------------------|------------------------------|--------------|
| RG-316/U, 188, 174 | 1.15 + .02f (GHz) 0-12.4 GHz | 142-9403-011 |
| RG-316 DS, 188 DS | 1.15 + .02f (GHz) 0-12.4 GHz | 142-9404-011 |
| RG-58/U, 141 | 1.15 + .01f (GHz) 0-12.4 GHz | 142-9407-001 |

See assembly instructions page 25

Right Angle Crimp Type Plug - Captivated Contact



| Cable Type | VSWR & Freq. Range | Gold Plated | Silver Plated |
|--------------------|------------------------------|--------------|---------------|
| RG-316/U, 188, 174 | 1.15 + .03f (GHz) 0-12.4 GHz | 142-9403-101 | 142-9403-104 |
| RG-316 DS, 188 DS | 1.15 + .03f (GHz) 0-12.4 GHz | 142-9404-101 | |
| RG-58/U, 141 | 1.15 + .02f (GHz) 0-12.4 GHz | 142-9407-101 | 142-9407-104 |

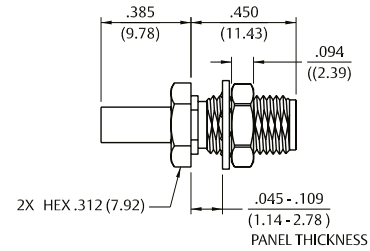
See assembly instructions page 25

NON-MAGNETIC RF CONNECTORS



SMA Non-Magnetic RF Connectors For PC Mount

Straight Crimp Type Blukhead Jack (3-piece) - Captivated Contact

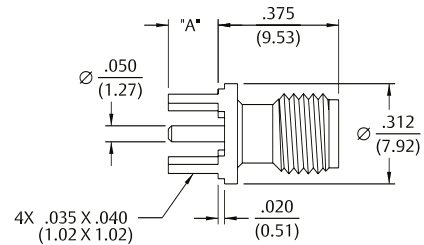


| Cable Type | VSWR & Freq. Range | Gold Plated |
|--------------------|------------------------------|--------------|
| RG-316/U, 188, 174 | 1.15 + .02f (GHz) 0-12.4 GHz | 142-9303-411 |

See assembly instructions page 25

Mounting hole layout figure 5 on page 14

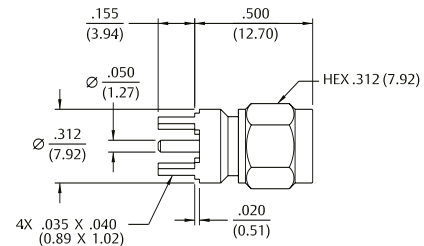
Straight Jack Receptacle



| Frequency Range | Gold Plated | "A" |
|-----------------|--------------|-------------|
| 0-18 GHz | 142-9701-201 | .155 (3.94) |
| 0-18 GHz | 142-9701-211 | .110 (2.79) |

Mounting hole layout figure 6 on page 14

Straight Plug Receptacle



| Frequency Range | Gold Plated |
|-----------------|--------------|
| 0-18 GHz | 142-9801-201 |

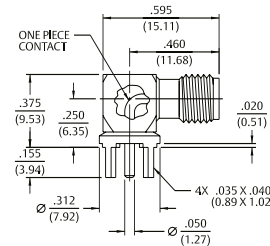
Mounting hole layout figure 6 on page 14

NON-MAGNETIC RF CONNECTORS



SMA Non-Magnetic RF Connectors For PC Mount

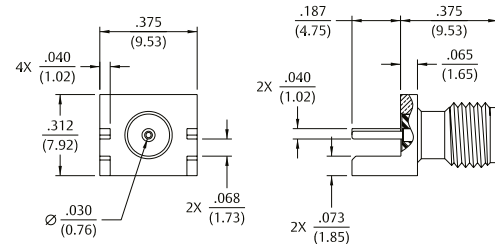
Right Angle Receptacle



| Frequency Range | Gold Plated |
|-----------------|--------------|
| 0-18 GHz | 142-9701-301 |

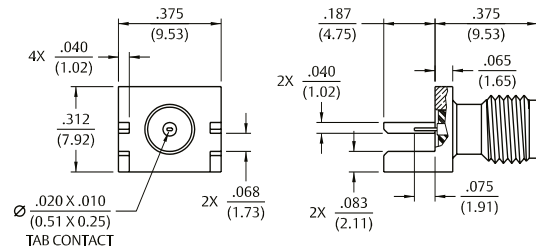
Mounting hole layout figure 6 on page 14

End Launch Receptacle - Round Contact



| Frequency Range | Gold Plated | Board Thickness |
|-----------------|--------------|-----------------|
| 0-10 GHz | 142-9701-801 | .062 (1.57) |

End Launch Receptacle - Tab Contact



| Frequency Range | Gold Plated | Board Thickness |
|-----------------|--------------|-----------------|
| 0-10 GHz | 142-9701-811 | .062 (1.57) |

Mounting hole layout

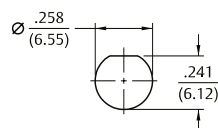


Fig 5

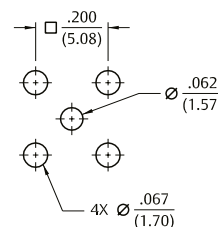


Fig 6

NON-MAGNETIC RF CONNECTORS



SMB Non-Magnetic RF Connectors

| ELECTRICAL SPECIFICATIONS | | | |
|--|---|---------------------------|------------------------------|
| Impedance: | | | 50 Ohms |
| Frequency Range | Connectors | | 0 - 4 GHz |
| VSWR: (f = GHz) | | Straight Cable Connectors | Right Angle Cable Connectors |
| | RG-316 Uncabled Receptacles | 1.25 + .04f N/A | 1.35 + .04f N/A |
| Working Voltage (VRMS maximum) | Connectors for Cable Type | Sea Level | 70K Feet |
| | RG-316, Uncabled Receptacles | 335 | 85 |
| Dielectric Withstanding Voltage (VRMS minimum at sea level) | Connectors for RG-316, Uncabled Receptacles | | 1000 |
| Insulation Resistance | | | 1000 megohms minimum |
| Contact Resistance (milliohms maximum) | | Initial | After Environmental |
| | Center Contact (straight cabled connectors, uncabled receptacles) | 6.0 | 8.0 |
| | Center Contact (right angle cabled connectors) | 12.0 | 16.0 |
| | Outer Contact | 1.0 | 1.5 |
| | Braid to Body | .10 | N/A |
| Corona Level (Volts minimum at 70,000 feet) | Connectors for RG-316 Uncabled Receptacles | | 250 N/A |
| Insertion Loss (dB maximum, tested at 1.5 GHz) | Straight Cable Connectors Right Angle Cable Connectors Uncabled Receptacles | | 0.3 dB 0.6 dB N/A |
| RF Leakage (dB minimum tested at 2.5 GHz) | Cable Connectors Uncabled Receptacles | | -55 dB N/A |
| RF High Potential Withstanding Voltage | (VRMS minimum, tested at 4 and 7 MHz) | | |
| | Connectors for RG-316 Uncabled Receptacles | | 700 600 |

| MECHANICAL SPECIFICATIONS | | | |
|---|--|--------------------------|-----------------------|
| Engagement Design | MIL-STD-348, Series SMB | | |
| Engagement / Disengagement Force | 2 pounds min to 14 pounds maximum axial force / 4 lb minimum axial force (captivated contacts) | | |
| Contact Retention | 4 lb minimum axial force (captivated contacts); 1 inch-ounce minimum torque (uncabled receptacles) | | |
| Cable Retention | Connectors for RG316 *Or cable breaking strength whichever is less. | Axial Force* (lbs) 20 | Torque (in-oz) N/A |
| Durability: | 500 cycles minimum | | |

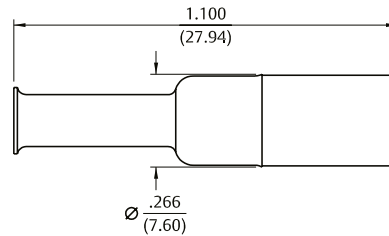
| ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012) | |
|--|--------------------------------------|
| Temperature Range | -65°C to +165°C |
| Thermal Shock | MIL-STD-202, Method 107, Condition B |
| Corrosion | MIL-STD-202, Method 101, Condition B |
| Shock | MIL-STD-202, Method 213, Condition I |

NON-MAGNETIC RF CONNECTORS



SMB Non-Magnetic RF Connectors For Flexible Cable

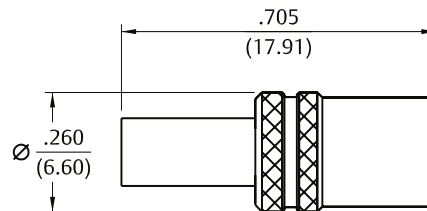
Straight Crimp Type Plug - Solder or Crimp Captivated Contact



| Cable Type | Gold Plated |
|-----------------------------------|--------------|
| RG-316/U, 188, 174, 179, 187 | 131-9403-001 |
| RG-316 DS, 188 DS, 179 DS, 187 DS | 131-9404-001 |

See assembly instructions page 27

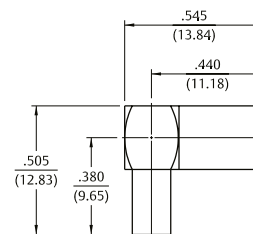
Straight Crimp Type Plug (3-piece), Solder or Crimp Captivated Contact



| Cable Type | Gold Plated |
|-----------------------------------|--------------|
| RG-316/U, 188, 174, 179, 187 | 131-9403-021 |
| RG-316 DS, 188 DS, 179 DS, 187 DS | 131-9404-021 |

See assembly instructions page 27

Right Angle Crimp Type Plug - Captivated Contact



| Cable Type | Gold Plated |
|-----------------------------------|--------------|
| RG-316/U, 188, 174, 179, 187 | 131-9403-101 |
| RG-316 DS, 188 DS, 179 DS, 187 DS | 131-9404-101 |

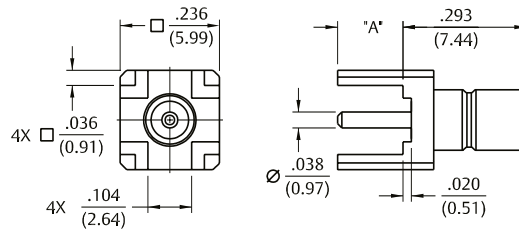
See assembly instructions page 27

NON-MAGNETIC RF CONNECTORS



SMB Non-Magnetic RF Connectors For Flexible Cable

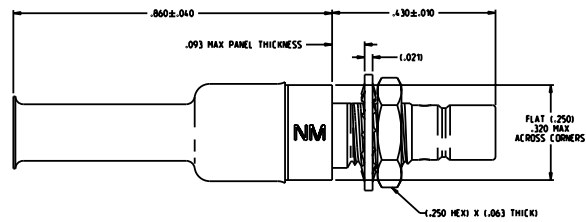
Straight Jack Receptacle



| Gold Plated | "A" |
|--------------|-------------|
| 131-9701-201 | .155 (3.94) |
| 131-9701-211 | .095 (2.41) |

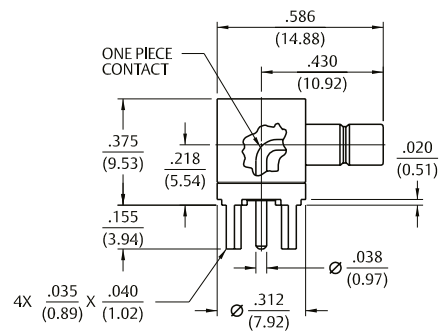
Mounting hole layout figure 7 on page 18

Straight Bulkhead Jack, Crimp Type, Flexible Cable



| Gold Plated |
|--------------|
| 131-9303-401 |

Right Angle Jack Receptacle



| Gold Plated |
|--------------|
| 131-9701-301 |

Mounting hole layout figure 7 on page 18

NON-MAGNETIC RF CONNECTORS



SMB Non-Magnetic RF Connectors For Flexible Cable

Mounting hole layout

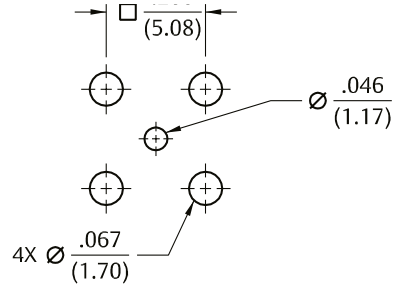


Fig 7

NON-MAGNETIC RF CONNECTORS



Type N Non-Magnetic RF Connectors

| ELECTRICAL SPECIFICATIONS | | | |
|--|--|-----------|---------------------|
| Impedance: | | | 50 Ohms |
| Frequency Range | Flexible Cabled and Receptacles | | 0-11 GHz |
| VSWR: (f = GHz) | | | 0-11 GHz |
| | Straight Flexible Cabled Uncabled Receptacles | | 1.3 max N/A |
| Working Voltage (VRMS maximum) | Connectors for Cable Type | Sea Level | 70K Feet |
| | RG-55/U | 335 | 85 |
| | RG-214, LMR-400 Cabled | 1000 | 250 |
| | Uncabled Receptacles | 1000 | 250 |
| Dielectric Withstanding Voltage (VRMS minimum at sea level) | | | |
| | RG-55 | | 1000 |
| | RG-214, LMR-400 Cabled | | 2500 |
| | Uncabled Receptacles | | 2500 |
| Insulation Resistance | 5000 megohms minimum | | |
| Contact Resistance (milliohms maximum) | | Initial | After Environmental |
| | Straight Cabled (non-captivated) | 1.0 | 1.5 |
| | Straight Cabled (captivated) | 2.5 | 3.0 |
| | Uncabled Receptacles | 1.0 | 1.5 |
| | Outer contact | 0.2 | N/A |
| | Braid to body | 0.05 | N/A |
| Corona Level (Volts minimum at 70,000 feet) | | | |
| | RG-55 | | 250 |
| | RG-214, LMR-400 Cabled | | 500 |
| | Uncabled Receptacles | | N/A |
| Insertion Loss (dB maximum, tested at 9 GHz) | | | |
| | Straight Cable Connectors | | 0.15 max |
| | Right Angle Cable Connectors | | 0.30 max |
| | Uncabled Receptacles | | N/A |
| RF Leakage (dB minimum tested at 2.5 GHz) | | | |
| | Cable connectors | | 90 |
| | Uncabled receptacles | | N/A |
| RF High Potential Withstanding Voltage | (VRMS minimum, tested at 4 and 7 MHz) | | |
| | RG-55 | | 670 |
| | RG-214, LMR-400 Cabled | | 1500 |
| | Uncabled Receptacles | | 1500 |
| IMP3 | | | Typically < -90 dBm |

(tested per IEC Guidelines using 20 W inputs swept over 1930-1990 MHz)

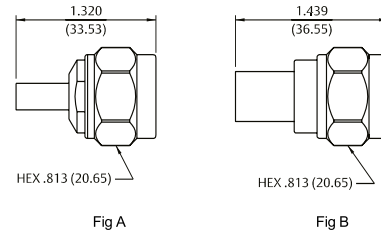
| MECHANICAL SPECIFICATIONS | | | |
|---|--|-------------------------------------|------------------------------------|
| | Cabled Connectors | Axial Force (lbs) | Torque (in-oz) |
| | Uncabled Receptacles | 6 | N/A |
| | | 6 | 4 |
| Cable Retention (minimum*) | | Axial Force (lbs) | Torque (in-oz) |
| | RG-55 Cabled | 45 | N/A |
| | RG-214, LMR-400 Cabled | 90 | N/A |
| | *Or cable breaking strength whichever is less. | | |
| ENVIRONMENTAL SPECIFICATIONS | | | |
| Engagement Design | MIL-STD-348A, Series N | Bulkhead Mounting Nut Torque | 15 inch-pounds recommended |
| Engagement / Disengagement Force | 6 inch-pounds maximum | Coupling Proof Torque | 15 inch-pounds minimum |
| Durability | 500 Cycles minimum | Coupling Nut Retention | 100 pounds minimum |
| Mating Torque | 7 to 10 inch-pounds | Contact Retention | minimum - captivated contacts only |

NON-MAGNETIC RF CONNECTORS



Type N Non-Magnetic RF Connectors For Flexible Cable

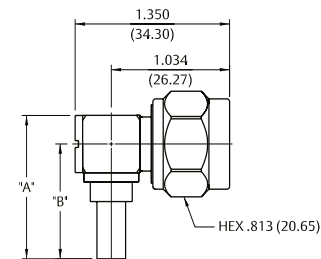
Straight Crimp Type Plug – Solder or Crimp Contact



| Cable Type | VSWR & Freq. Range | Tri-Alloy Plated Figure |
|------------------------|--------------------|-------------------------|
| RG-55/U, 142, 223, 400 | 1.30 Max, 0-11 GHz | 138-9408-007 A |
| LMR-400, BELDEN 9913 | 1.30 Max, 0-11 GHz | 138-9449-007 B |

See assembly instructions page 28

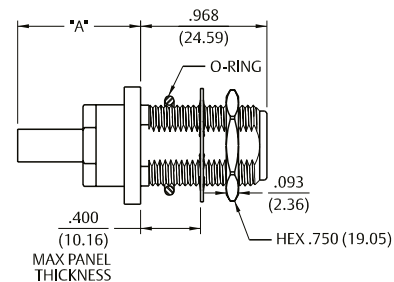
Right Angle Crimp Type Plug – Captivated Contact



| Cable Type | VSWR & Freq. Range | Tri-Alloy Plated | "A" | "B" | |
|------------------------|--------------------|--------------------|--------------|---------------|---------------|
| RG-55/U, 142, 223, 400 | 1.35 Max, 0-9 GHz | 1.50 Max, 9-11 GHz | 138-9408-107 | 1.253 (31.83) | 1.003 (25.48) |
| RG-9/U, 214 | 1.35 Max, 0-9 GHz | 1.50 Max, 9-11 GHz | 138-9418-107 | 1.365 (34.67) | 1.115 (28.32) |

See assembly instructions page 28

Straight Crimp Type Bulkhead Jack – Solder or Crimp Contact



| Cable Type | VSWR & Freq. Range | Tri-Alloy Plated | "A" |
|------------------------|--------------------|------------------|--------------|
| RG-55/U, 142, 223, 400 | 1.30 Max, 0-11 GHz | 138-9308-407 | .943 (23.95) |
| LMR-400, BELDEN 9913 | 1.30 Max, 0-11 GHz | 138-9349-407 | .997 (25.32) |

See assembly instructions page 28

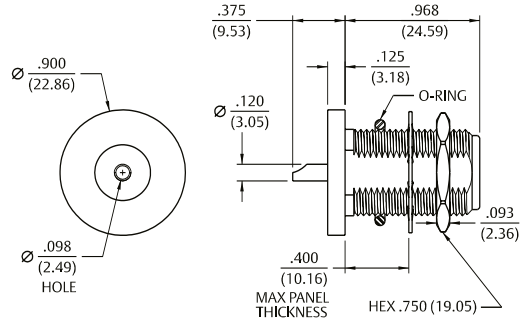
Mounting hole layout figure 8 on page 21

NON-MAGNETIC RF CONNECTORS



Type N Non-Magnetic RF Connectors For Bulkhead and Flange Mount

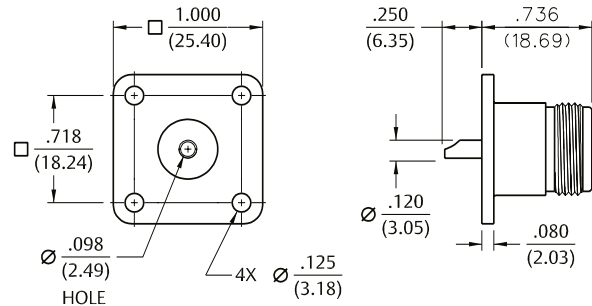
Rear Mount Bulkhead Jack Receptacle



| | |
|--------------------|-------------------------|
| Freq. Range | Tri-Alloy Plated |
| 0-11 GHz | 138-9701-407 |

Mounting hole layout figure 8 on page 21 (below)

4-Hole Flange Mount Jack Receptacle – Flush Dielectric



| | |
|--------------------|-------------------------|
| Freq. Range | Tri-Alloy Plated |
| 0-11 GHz | 138-9701-607 |

Mounting hole layout figure 8 on page 21 (below)

Mounting Hole Layout

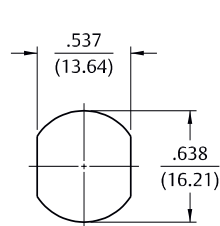


Fig 8

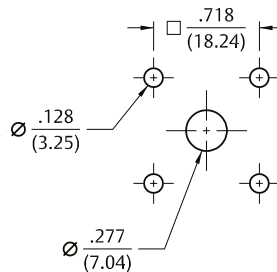


Fig 9



Asia Pacific
+86 21 5442 7668
ccs.asia.sales@as.cinch.com

Europe, Middle East & Africa
+44 (0) 1245 342060
CinchConnectivity@eu.cinch.com

North America
+1 507.833.8822
ccsorders@us.cinch.com
belfuse.com/cinch

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View 142-9701-801 on WIN SOURCE](#)
- ⊖ [Cinch Connectivity Solutions Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management