The 7 mm Precision Hermaphrodite Coaxial Connectors are made available for laboratory instrumentation use. The construction is resonant free through 18.0 GHz.

An economical savoy version is also made available using threaded outer plug and jack configuration. This version will mate directly to the hermaphroditic types without degradation of performance. These are available to attach to .141, .250 and .325 inch diameter semi rigid cables, and to RG 214/U and RG 142B/U flexible cables.

**Design and Construction**
The outer shell and coupling mechanisms are made of polished stainless steel. The inner contact is made of gold plated beryllium copper. A special resonant free to 18.0 GHz supporting bead is used to capture the center contact.

**Assembly Tool**
Optional assembly tool, part number 7096-5001, may be ordered separately for assembly convenience.

**Electrical Performance**
- **Impedance:** 50 Ohms
- **Frequency Range:** 0-18 GHz
- **VSWR:** 1.003 + 0.002 (1GHz see curve)
- **Temperature Range:** -55°C to +65°C

**Preparation to Mating Section:**
Strict adherence to the dimensions shown for outer and inner conductors is a requirement for precision performance.

**Notes:**
1. Surface “A” to be perpendicular to .3756 and .3753 diameters within .0005 T.I.R.
2. Surface “B” to be perpendicular to .1197 and .0953 diameters within .0005 T.I.R.
3. All other dimensions to be within .0005 tolerances of outer conductor surface “A”.

---

M/A-COM, Inc.
North America: Tel. (800) 366-2266 ■ Asia/Pacific: Tel. +81 (03) 3226-1671 ■ Europe: Tel. +44 (1344) 869 595
Fax (800) 618-8883 ■ Fax +81 (03) 3226-1451 ■ Fax +44 (1344) 300 020
MCX Series
50 Ohms
Sub Miniature Snap-On Coupling

Features
- 30 percent smaller than SMB Connectors
- For applications to 6 GHz
- Resistance to RF leakage
- For areas that are inaccessible to the normal mating action
- Made to CECC 22220
- Brass bodies with perylium copper female contacts with gold plating

Options
- Small Sized Cables - 0.047 SR, 0.086 SR, RG316, RG188, RG187, RG174, RG179, RG196, RD316.
- Straight, Right-Angle, Long Crimp, Short Crimp, Printed Circuit Board, Solder and Compliant Pin types available
- Adapters available
- Nickel or Gold Finish available

Specifications
- QO-S-626
- CECC 22220
- QO-C-530
- MIL-G-45204
- ZZ-R-765

Mating Data
- RG/J/U Cables (See page 30-9)

Technical Data

Materials
- Body Parts: Brass, QO-B-526, 1/2 HD.
- Contacts:
  - Male: Brass, QO-C-530
  - Female: Perylium copper, QQ-C-530
- Insulators: PTFE Fluorocarbon

Plating
All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Finish: Gold, MIL-G-45204, Nickel, IP-23

Electrical Performance
- Impedance: 50 Ohm nominal
- Frequency: 8 MHz to 6 GHz
- Insulation Resistance: 5,000 MΩ Minimum
- Voltage Rating: 335 VRMS
- Dielectric Withstanding: 1000 VRMS at sea level

- Voltage Standing Wave ratio (VSWR): 1.3 max to 4 GHz
- Insertion Loss: 0.1 dB max at 8 MHz (4 GHz)
- Contact Resistance: 5.0 mΩ Maximum

Mechanical Performance
- Connector Durability: 500 cycles Minimum
- Force to Engage and Disengage:
  - Engagement: 14 lbs Maximum
  - Separation: 17.5 lbs Minimum
  - 4.5 lbs Maximum

Environmental Qualification
- Temperature Range: -55°C to +155°C
- Vibration: 10 to 500 Hz at 16 G’s
- Temperature Cycling: -40°C to +125°C
- High Temperature Test: -42°C for 96 hours

Packaging
- Single Bars
- Custom packaging available upon request

Customer Support Materials

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No.</th>
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</tr>
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<tbody>
<tr>
<td>Customer Product Drawings</td>
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</table>
SMC Series
50 Ohms
Threaded Coupling

Features
- Sub Miniature
- For applications to 10 GHz
- Improved Vibration Characteristics
- Made to MIL-C-39012

Options
- Small and Medium Sized Cables RG 174, 188, 316, RG 178, 196
- Straight, Right-Angle, Long Crimp, Short Crimp, Flange Mount, Single Hole Mount, Printed Circuit Board, Cap and Chain, Termination, Cross and Tee types available
- Adapters available

Specifications
- MIL-C-39012
- MIL-STD-348
- MIL-STD-202
- MIL-C-5220
- MIL-G-45204
- QQ-S-365
- ZZ-R-765
- QQ-S-365

Mating Data
- RG/JC Cables (See page 30-9)

Technical Data

Materials
- Body Parts: Brass, QQ-S-626 1/2 HD.
- Contacts
  - Male: Brass
  - Female: Beryllium copper QQ-C-520
- Insulators: PTFE Fluorocarbon
- Gaskets: Silicone Rubber ZZ-R-765

Plating
All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Gold: MIL-G-45204
- Nickel: IP23
- Silver: QQ-S-365

Electrical Performance
- Impedance: 50 Ohm nominal
- Frequency: D.C. to 10 GHz
- Insulation Resistance: 1,000 MΩ Minimum
- Voltage Rating: 750 VRMS at sea level
- R.F. Leakage: less than 55 dB maximum

- R.F. High Potential Withstanding Voltage: 700 VRMS at 5 MHz
- Voltage Standing Wave ratio (VSWR): 1.20 + 0.044/f GHz with RG 316
- Insertion Loss: 0.25 dB max at 4 GHz
- Contact Resistance:
  - Outer contact: 1.0 mΩ maximum
  - Center contact: 0.6 mΩ maximum

Mechanical Performance
- Force to Engage and Disengage: 15 inch-oz. Maximum
- Coupling Nut Torque Force: 36 in-lb minimum
- Coupling Proof Torque: 100 inch-oz Minimum
- Connector Durability: 500 cycles minimum

Operating Environment
- Temperature range: -65°C to +185°C
- Vibration: MIL STD-202, method 204, cond D
- Thermal shock: MIL-STD-202, method 107, cond B
- Corrosion (salt spray): MIL-STD-202, method 101, cond B

Packaging
- Single Bags
- Custom packaging available upon request

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SMB Series
75 Ohms
Snap-On Coupling

Features
- Small
- For applications to 4 GHz
- Resistance to RF leakage
- Made to MIL-C-39012

Options
- Straight, Right Angle, Long Crimp, Short Crimp, Flange Mount, Single Hole Mount, Printed Circuit Board, Cap and Chain, Termination, Cross and Tee types available
- Adapters available

Specifications
- MIL-C-39012
- MIL-STD-348
- MIL-STD-202
- QQ-C-530
- MIL-G-45204
- QQ-S-365
- ZZ-R-765
- QQ-R-626

Mating Data
- RG/U Cables (See page 30-9)

---

Technical Data

Materials
- Body Parts ........................................ Brass, QQ-S-625, 1/2 HD.
- Contacts
  - Male ........................................ Brass
  - Female ....................................... Beryllium copper UH-L-549
- Insulators ........................................ PTFE Fluorocarbon
- Gaskets ......................................... Silicone Rubber ZZ-R-765

Plating
All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Finish
  - Gold ........................................ MIL-C-45204
  - Nickel ....................................... IP23
  - Silver ....................................... QQ-S-365

Electrical Performance
- Impedance ....................................... 50Ω nominal
- Frequency ...................................... D.C. to 4 GHz
- Insulation Resistance ........................ 1,000 MΩ minimum
- Voltage Rating .................................. 250 VRMS
- Dielectric Withstanding ........................ 1,000 VRMS at sea level
- R.F. Leakage ..................................... 55 dB minimum at 2 to 3 GHz
- R.F. High Potential
- Withstanding Voltage .......................... 500 VRMS at 5 MHz
- Voltage-Standing Wave Ratio (VSWR) ....... 1.30 + 0.04f(GHz)
- Insertion Loss ................................... 0.3 dB max at 1.5 GHz
- Contact Resistance
  - Outer contact .................................. 1.0 mΩ maximum
  - Center contact .................................. 6.0 mΩ maximum

Mechanical Performance
- Force to Engage ................................ 14 inch-lbs Maximum
- Force to Unengage .............................. 2 in-lbs Minimum
- Connector Durability ......................... 500 cycles minimum

Operating Environment
- Temperature range ....................... -65°C to +185°C
- Vibration ......................................... MIL-STD-202, method 204, cond D
- Shock ............................................ MIL-STD-227, method 213, cond. I
- Corrosion (salt spray) ....................... MIL-STD-55, method 107, cond. D

Packaging
- Single Bags
- Custom packaging upon request

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</table>
SMA Series
50 Ohms
Threaded Coupling

Features
- Sub Miniature
- For applications to 10 GHz
- Resistance to RF leakage
- Made to MIL-C-39012

Options
- Small and Medium Sized Cables; 0.141 and 0.062 diameter semi-rigid cable as well as RG174, 188, 316 and RG316
- Straight, Right-Angle, Long Crimp, Short Crimp, Flange Mount, Single
- Hole Mount, Printed Circuit Board, Can and Chain, Termination, Cross and Tee
- types available
- Adapters available

Specifications
- MIL-C-39012
- MIL-STD-202G
- MIL-STD-202
- QQ-C-530
- MIL-G-45204
- QQ-G-005
- ZZ-R-765

Mating Data
- RG/U Cables (See page 30-9)

Technical Data

Materials
- Body Parts: Non-Magnetic Stainless Steel, ASTM, Class 303
- Contacts: Beryllium copper, QQ-C-530, Brass
- Insulators: PTFE Fluorocarbon
- Gaskets: Silicone Filler, ZZ-R-765

Plating
- All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Finish: Gold, MIL-G-45204, Nickel, IP23, Tni-Alloy, P20

Electrical Performance
- Impedance: 50Ω nominal
- Frequency: D.C. to 10 GHz
- Insulation Resistance: 5,000 MΩ Minimum
- Voltage Rating: 500 VRMS
- Dielectric Withstanding: 1,000 VRMS at sea level
- leakage: JHAJ 0.1% at maximum
- R.F. High Potential
- Withstanding Voltage: 670 VRMS at 5 MHz
- Voltage Standing Wave ratio (VSWR): 1.15 + 0.011(1GHz) Maximum
- Insertion Loss: 0.06 times root 1 GHz dB Maximum
- Contact Resistance
  - Outer contact: 3.0 mΩ maximum
  - Center contact: 2.0 mΩ maximum

Mechanical Performance
- Force to Engage and Disengage
- Torque: 2 inch-lbs Maximum
- Coupling Nut Retention Force: 60 lbs minimum
- Coupling Nut Torque: 10 inch-lbs Minimum
- Connector Durability: 500 cycles minimum

Operating Environment
- Temperature range: -55°C to +165°C
- Vibration: MIL-STD-202, method 204, cond D

Packaging
- Single Bags
- Custom packaging available upon request

Customer Support Materials

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</tbody>
</table>
N Series
75 Ohms
Screw Thread Coupling

Features
- Small
- Weatherproof
- For applications below 2 GHz

Options
- Small and Medium Size Cables
- Straight, Right-Angle, Long Crimp,
  Short Crimp, Flange Mount, Single
  Hole Mount, Printed Circuit Board, Cap
  and Chain, Termination and Tee tunes,
  available
- Adapters available

Specifications
- QO-B-620
- MIL-STD-348
- MIL-STD-202
- MIL-C-45204
- QQ-S-365
- ZZ-R-765

Mating Data
- RG/U Cables (See page 30-9)

Technical Data

Materials
- Body Parts ........................................ Brass, QO-B-626, 1/2 HO.
- Contacts ........................................
  - Male .................................... Brass QO-B-626, 1/2 HO.
  - Female ................................... Beryllium copper QQ-C-530
  Heat treated to condition HT
- Insulators .................................... PTFE Flammability
- Gaskets ....................................... Rubber ZZ-R-765

Plating
All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Finish
  - Gold ........................................ MIL-G-45204
  - Nickel .................................... IPE
  - Silver .................................... QQ-S-365
  - Tri-Alloy ................................ P20

Electrical Performance
- Impedance .................................... 75Ω nominal
- Frequency Range ............................ 0 to 2 GHz

- Insulation Resistance .................... 5,000 MΩ Minimum
- Voltage Rating .............................. 1,000 VRMS working Voltage
- Dielectric Withstanding .................. 1,500 VRMS at sea level
- Contact Resistance
  - Outer contact ................................ 0.2 mΩ Maximum
  - Center contact ............................ 1.0 mΩ Maximum

Mechanical Performance
- Force to Engage and Disengage
  - Torque .................................... 3 lbf-in Maximum
- Coupling Nut Retention Force .......... 100 lbs Minimum
- Connector Durability ..................... 500 cycles Minimum

Operating Environment
- Temperature range ........................ -65°C to +155°C
- Moisture Resistance ...................... MIL-STD-202, method 106

Packaging
- Single Bags
- Custom packaging available upon request.

Customer Support Materials

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</tr>
</tbody>
</table>

30-80 RF/Coaxial

Berg Electronics 1 800-237-2374
# TNC Series

## TRIAX

### Threaded

## Features
- Miniature
- Weatherproof
- Reduce noise levels
- Isolated ground
- Non-constant Impedance

## Options
- Small and Medium Sized Cables
- Two and Three lug versions available
- Straight, Right-Angle, Long Crimp, Short Crimp, Flange Mount, Single Hole Mount, Printed Circuit Board, Box and Chain, Termination and Tee types available
- Adapters available

## Mating Data
- RG-1/U Cables (See page 308)

## Specifications
- QQ-D-020
- MIL-STD-348
- MIL-STD-202
- QQ-C-530
- MIL-D-42264
- QQ-S-365
- ZZ-R-765

## Technical Data

### Materials
- Body Parts: Brass, QQ-B-626, 1/2 HD.
- Contacts
  - Male: Brass, QQ-B-626, 1/2 HD.
  - Female: Beryllium copper, QQ-C-530, Heat treated to condition HT.
- Insulators: PTFE Flurocarbon
- Gaskets: Rubber

### Plating
All parts plated to meet finish and corrosion requirements of MIL-C-39012

### Electrical Performance
- Impedance: Non-constant
- Insulation Resistance: 5,000 M2 Minimum
- Voltage Rating: 400 VRMS working Voltage
- Contact Resistance
  - Outer contact: 0.5 m2 Maximum
  - Center contact: 5.0 m2 Maximum
  - Intermediate contact: 0.5 m2 Maximum

### Mechanical Performance
- Force to Engage and Disengage: 2 inch-lbs Maximum
- Compiling Nut Retention Force: 100 lbs Minimum
- Connector Durability: 500 cycles Minimum

### Operating Environment
- Temperature range: -65°C to +165°C
- Moisture resistance: MIL-S-81202, method 106

### Packaging
- Single Bags
- Custom packaging available upon request

## Customer Support Materials

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
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<td>Customer Product Drawings</td>
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<tr>
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</tr>
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</tr>
</tbody>
</table>
TNC Series
50 Ohms
Threaded Coupling

**Features**
- Miniature
- Weatherproof
- For applications to 11 GHz
- Improved Vibration Characteristics
- Resistance to RF leakage
- Plugs incorporate safety wiring holes in the coupling sleeve so that they may be wired in place in severe vibration conditions.
- Made to MIL-C-39012

**Options**
- Small and Medium Sized Cables
- Straight, Right Angle, Long Crimp, Short Crimp, Flange Mount, Single Hole Mount, Printed Circuit Board, Cap and Chain, Termination, Cross and Tee types available
- Adapters available

**Specifications**
- MIL-C-39012
- MIL-STD-348
- MIL-STD-202
- QQ-C-530
- MIL-G-5204
- QQ-S-365
- Z7-R-765
- QQ-S-626

**Mating Data**
- RG-1/U Cables (See page 30-9)

---

**Technical Data**

**Materials**
- Body Parts: Brass, QQ-B-628, 1/2 HD.
- Contacts:
  - Male: QQ-A-620, 1/2 HD.
  - Female: Beryllium copper QQ-C-530
- Insulators: PTFE Fluorocarbon
- Gaskets: Silicone Rubber ZZ-R-765

**Plating**
All parts plated to meet finish and corrosion requirements of MIL-C-39012.
- Finish:
  - Gold: MIL-G-45204
  - Nickel: IP23
  - Chron: QQ-G-306
  - Tri-Alloy: P20

**Electrical Performance**
- Impedance: 50 Ohm nominal
- Frequency: D.C. to 18 GHz
- Insulation Resistance: 5,000 MΩ Minimum
- Voltage Rating: 500 VRMS
- Dielectric Withstanding: 1,500 VRMS at sea level
- R.F. Leakage: -60 dB Minimum at 2 to 3 GHz
- R.F. High Potential
  - Withstanding Voltage: 1,000 VRMS at 5 to 7 MHz
  - Voltage Standing Wave ratio (VSWR): 1.30 Maximum at 500 to 11,000 MHz
  - Insertion Loss: -16 dB at 9 GHz
  - Contact resistance:
    - Outer contact: 0.2 mΩ maximum
    - Center contact: 1.5 mΩ maximum

**Mechanical Performance**
- Force to Engage and Disengage
  - Torque: 2 1/2 inch-lbs Maximum
- Coupling Nut Retention Force: 100 lbs minimum
- Coupling Proof Torque: 30 inch-lbs Minimum
- Connector Durability: 500 cycles minimum

**Operating Environment**
- Temperature range: -85°C to +185°C
- Vibration:
  - MIL-S-1U-202, method 204, cond. B (20 G's)
- Shock:
  - MIL-STD-202, method 213, cond. 1 (10G's)
- Thermal shock:
  - MIL-STD-202, method 107, cond. B
  - -85°C to +115°C
- Corrosion (salt spray):
  - MIL-STD-202, method 101, cond. D
- Moisture Resistance:
  - MIL-STD-202, method 106

**Packaging**
- Single bag
- Custom packaging available upon request

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**BNC Series**

75 Ohms

Bayonet Locking

---

**Features**
- Miniature
- Weatherproof
- For applications below 2 GHz

**Options**
- Small and Medium Sized Cables
- Straight, Right-Angle, Long Crimp, Short Crimp, Flange Mount, Single Hole Mount, Printed Circuit Rear Mount, Can and Chain, Termination and Tee types available
- Adapters available

**Specifications**
- QO-B-626
- MIL-STD-348
- MIL-STD-202
- MIL-G-45204
- QO-S-365
- ZZ-R-765

**Mating Data**
- RG-1/U Cables (See page 30-9)

---

**Technical Data**

**Materials**
- Body Parts: Brass, QO-B-626, 1/2 HD.
- Contacts:
  - Male: Brass, QO-B-626, 1/2 HD.
  - Female: Beryllium copper, QQ-C-530, Heat treated to condition HT
- Insulators
- Gaskets: Rubber, ZZ-R-765

**Plating**
- All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Finish:
  - Gold: MIL-G-45204
  - Nickel: QQ-S-365
  - Tri-Alloy: P20

**Electrical Performance**
- Impedance: 75Ω nominal
- Frequency Range: 0 to 2 GHz
- Insulation Resistance: 5,000 MΩ Minimum
- Voltage Rating: 500 VRMS working Voltage
- Dielectric Withstanding: 1,500 VRMS at sea level
- Voltage Standing Wave ratio (VSWR): 1.17 Max to 2 GHz
- Contact Resistance:
  - Outer contact: 0.2 mΩ maximum
  - Center contact: 1.5 mΩ maximum

**Mechanical Performance**
- Force to Engage and Disengage:
  - Longitudinal force: 3 lbs Maximum
  - Torque: 2 1/2 inch-lbs Maximum
- Coupling Nut Retention Force: 100 lbs minimum
- Connector Durability: 500 cycles minimum

**Operating Environment**
- Temperature range: -65°C to +165°C

**Packaging**
- Single Bag
- Custom packaging available upon request

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30-28 RF/Coaxial

RICH Electronics 1-800-733-7376
BNC Series
50 Ohms
Bayonet Locking

Features
- Miniature
- Weatherproof
- For applications below 4 GHz
- Made to MIL-C-39012

Options
- Small and Medium Sized Cables
- Straight, Right-Angle, Long Crimp, Short Crimp, Flange Mount, Single Hole Mount, Printed Circuit Board, Can and Chain, Termination, Cross and Tee types available
- Adapters available

Mating Data
- RG/U Cables (See page 30-9)

Technical Data

Materials
- Body Parts ................................ Brass, QQ-B-226, 1/2 HD.
- Contacts
  - Male ........................................ Brass, QQ-B-226, 1/2 HD.
  - Female .................................... Beryllium copper, QQ-C 420
- Insulators .................................. PTFE Fluorocarbon
- Gaskets .................................... Silicon Rubber, ZZ-R-765

Plating
All parts plated to meet finish and corrosion requirements of MIL-C-39012
- Copper ..................................... MIL-C-49224
- Nickel ..................................... IP23
- Silver ..................................... QQ-S-365
- Tri-Alloy .................................. P20

Electrical Performance
- Impedance ................................ 50Ω nominal
- Frequency ................................ D.C. to 4 GHz
- Insulation Resistance .............. 5,000 MΩ Minimum
- Voltage Rating ......................... 500 VRMS working Voltage
- Dielectric Withstanding .............. 1,300 VRMS at sea level
- R.F. Leakage ............................... 55dB Minimum at 2 to 3 GHz

- R.F. High Potential
  - Withstanding Voltage ............ 1,000 VRMS at 5 to 7.5 MHz
  - Voltage Standing Wave ratio (VSWR) ...... 1.30 Max. to 4 GHz
  - Insertion Loss ....................... 0.2 dB Maximum at 3 GHz
  - Contact Resistance
    - Outer contact ..................... 0.2 mΩ Maximum
    - Center contact .................... 1.5 mΩ Maximum

Mechanical Performance
- Force to Engage and Disengage
  - Longitudinal force ...................... 3 lbs Maximum
  - Torque .................................. 9 1/2 inch lbs Maximum
  - Coupling Nut Retention Force ........ 100 lbs Minimum
  - Connector Durability .............. 500 cycles Minimum

Operating Environment
- Temperature range ................. -65°C to +165°C
- Vibration ................................ MIL-STD-202, method 204, cond D.
- Shock .................................... MIL-STD-202, method 213, cond. G
- Moisture Resistance .............. MIL-STD-202, method 106

Packaging
- Single Bag
- Custom packaging available upon request.

Customer Support Materials

<table>
<thead>
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<th>Description</th>
<th>Order No.</th>
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<tbody>
<tr>
<td>Customer Product Drawings</td>
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<td>Product Samples</td>
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<td>By Part Number</td>
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<td>Test Data</td>
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<td>Product Substitutions</td>
<td>Contact Technical Support</td>
<td>Liaison Request</td>
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Page 10-16 RF Coaxial
Rena Electronics 1-800-237-7734