SMA Series Subminiature RF Connectors

- Screw-on mating
- Frequency range DC-18 GHz
- High performance
- Rugged construction
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SMA Connectors

AEP SMA connectors are available with gold-plated bodies, or with passivated or nickel-plated bodies for greater economy. The coupling nuts of plug connectors are passivated in all cases.

Our unique mechanical captivation method (see page 5) greatly reduces RF leakage by eliminating epoxy fill holes in the connector body.

Specifications (MIL-PRF-39012 as applicable)

Materials:
Contacts: Beryllium copper per ASTM-B-196, Condition HT.
Insulators: Teflon TFE per ASTM-D-1710.
Gaskets: Silicone rubber per ZZ-R-765, Class 2B, grade 65-75.

Finish:
Center contacts: Gold plated per current revision of MIL-PRF-39012*
Other metal parts: Gold plated, passivated, or nickel plated to meet current MIL-PRF-39012 corrosion requirements.*

Electrical:
VSWR Straight cable plugs and jacks):
<table>
<thead>
<tr>
<th>Cable</th>
<th>VSWR</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG-178</td>
<td>1.20 + (.025 x F[GHz])</td>
<td>DC-12.4 GHz</td>
</tr>
<tr>
<td>RG-316</td>
<td>1.15 + (.020 x F[GHz])</td>
<td>DC-12.4 GHz</td>
</tr>
<tr>
<td>RG-142</td>
<td>1.15 + (.010 x F[GHz])</td>
<td>DC-12.4 GHz</td>
</tr>
<tr>
<td>RG-402(1)</td>
<td>1.05 + (.008 x F[GHz])</td>
<td>DC-18 GHz</td>
</tr>
<tr>
<td>RG-402(2)</td>
<td>1.05 + (.010 x F[GHz])</td>
<td>DC-18 GHz</td>
</tr>
<tr>
<td>RG-405(1)</td>
<td>1.07 + (.008 x F[GHz])</td>
<td>DC-18 GHz</td>
</tr>
<tr>
<td>RG-405(2)</td>
<td>1.07 + (.010 x F[GHz])</td>
<td>DC-18 GHz</td>
</tr>
</tbody>
</table>

(1) Non-captive contact.  (2) Captive contact.

VSWR specifications not applicable to non-cabled connectors.
Impedance: 50Ω.

Frequency range: DC–8, 12.4, or 18 GHz (varies with cable type).
Insulation Resistance: 5,000 megohms minimum.

*These specifications change periodically with updates to MIL-PRF-39012 requirements. Contact factory for latest specifications.

Environmental (MIL-STD-202):
Temperature range: -65˚ C to +165˚ C.
Corrosion: Method 101, condition B, 5% salt solution.
Vibration (Method 204): Condition B.
Mechanical shock (Method 213): Condition B.
Thermal shock (Method 107): Condition B.

Interface Dimensions

Plug

Jack

Contact Resistance: 3 milliohms maximum.
RF highpot: 335-675 VRMS @ 5-7.5 M Hz (varies with cable type).
RF leakage: -60 dB min @ 2–3 GHz.
Insertion loss: .44 dB max to 6 GHz.

Mechanical:
Force to engage/disengage: 2 pounds max.
Force to engage/disengage (female contacts):
(After 5 insertions of .375” diameter pin, .040” min depth)
Insertion force for .037 min diameter pin, 2 pounds max.
Withdrawal force for .0355” max diameter pin, 1 ounce min.
Contact retention: 6 pounds min axial force (captive types).
Durability: 500 mating cycles.

APPLIED ENGINEERING PRODUCTS
(203) 776-2813 • FAX (203) 776-8294  www.aepconnectors.com • aepsales@aepconnectors.com
SMA Cable Attachment Methods

Semi-Rigid Cable

**Direct Solder (cable center conductor used as contact):** This type of cable attachment ensures the best possible electrical performance because there are no discontinuities introduced by contact geometry changes. It is best used in applications **not** requiring frequent mating and unmating, because the pointed center conductor and exposed cable jacket will shed metal chips when mated with SMA female connectors.

![Diagram](image1)

<table>
<thead>
<tr>
<th>VSWR</th>
<th>P/N 9301-1063-009 (200’ cable used as load)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

**Direct Solder (with contact and insulator):** Although this cable attachment exhibits higher VSWR than types without contacts, it provides an outer conductor that does not have the copper cable jacket exposed to mating forces. This, along with the beryllium-copper contact, ensures clean interfaces through many mating cycles.

![Diagram](image2)

<table>
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**Direct Solder (with captive contact):** These connectors have electrical performance similar to types with non-captive contacts, but with faster and easier cable assembly. The cable is simply stripped and inserted into the connector, and the cable jacket soldered to the connector. The proper contact gap is automatically maintained, and no contact soldering is required.

![Diagram](image3)

**Solder-clamp:** This attachment is most useful for right angle plugs and bulkhead jacks. After the connector is assembled to the cable jacket, it can be repositioned relative to the cable by loosening the clamp nut. Electrical performance is similar to direct-solder plugs with contacts.

![Diagram](image4)
SMA Cable Attachment Methods

Flexible Cable

Crimp (non-captive contact): This attachment method provides the best possible electrical performance, and the fastest assembly. Solder type connectors for flexible cable have the same construction, but add a hole in the side of the crimp sleeve for soldering the cable braid to the connector. We do not recommend the use of solder type connectors with flexible cable—the heat from soldering may damage the cable dielectric.

Crimp (captive contact): This attachment method mechanically captivates the center contact to eliminate movement during cable flexure or thermal stress.

Clamp (captive contact): These connectors can be assembled without special tooling, and are field replaceable.

SMA Captivation

All AEP SMA receptacles and adapters use our unique mechanical captivation for contacts and insulators. This method provides retention strength to meet MIL-PRF-39012 requirements, and eliminates RF leakage from epoxy fill holes. The contact barbs and body staking are designed and located to provide electrical performance that equals or exceeds epoxy-captivated types.

P/N 5916-1103-603 terminated with 9301-1063-009 on VSWR 200’ .141 semi-rigid.
SMA Cable Plugs for Semi-Rigid Cable
Click on part number to go directly to cable assembly instructions

Straight Plugs

- Direct solder attachment
- Retractable coupling nut
- Cable center conductor used as contact

For .141” semi-rigid:
9301-1063-009 (Gold plated)
9301-7063-009 (Nickel plated)
QPL version available (M39012/92)

- Direct solder attachment
- Retractable coupling nut
- Cable center conductor used as contact
- Stepped body for use in applications requiring frequent mating and unmuting

For .141” semi rigid:
9301-1063-109 (Gold plated)
9301-7063-109 (Nickel plated)

- Direct solder attachment
- Provided with contact and insulator
- Noncaptive contact

For .085” semi-rigid (A = .089):
9401-1083-010 (Gold plated)
9401-7083-010 (Nickel plated)
For .141” semi-rigid (A = .144):
9401-1083-109 (Gold plated)
9401-7083-109 (Nickel plated)

- Direct solder attachment
- Provided with contact and insulator
- Captive contact for one-step cable assembly

For .085” semi-rigid (A = .089):
9401-1583-010 (Gold plated)
9401-7583-010 (Nickel plated)
For .141” semi-rigid (A = .144):
9401-1583-109 (Gold plated)
9401-7583-109 (Nickel plated)

Continued on next page
SMA Cable Plugs for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

**Straight Plugs**

- Direct solder attachment
- Provided with contact and insulator
- Noncaptive contact
- Short body length allows very tight cable bend in dense packaging applications

For .085” semi-rigid:
- **9401-1083-210** (Gold plated)
- **9401-7083-210** (Nickel plated)

For .141” semi-rigid:
- **9501-1593-010** (Gold plated)
- **9501-9593-010** (Passivated)

QPL version available (M39012/79)

**Right Angle Plugs**

- Direct solder attachment

For .085” semi-rigid (A = .089):
- **9443-1563-010** (Gold plated)
- **9443-7563-010** (Nickel plated)

For .141” semi-rigid (A = .144):
- **9443-1563-009** (Gold plated)
- **9443-7563-009** (Nickel plated)

- Solder-clamp attachment

For .085” semi-rigid:
- **9543-1593-010** (Gold plated)
- **9543-9593-010** (Passivated)

For .141” semi-rigid:
- **9543-1593-009** (Gold plated)
- **9543-9593-009** (Passivated)
SMA Cable Plugs for Flexible Cable
Click on part number to go directly to cable assembly instructions

Straight Plugs

**Straight Plug**
- Noncaptive contact

Crimp type:
- 9001-1023-0XX (Gold plated)
- 9001-9023-0XX (Passivated)

Solder type:
- 9001-1033-0XX (Gold plated)

---

**Straight Plug**
- Captive contact

Crimp type:
- 9101-1573-0XX (Gold plated)
- 9101-9573-0XX (Passivated)

QPL version available (M39012/55)

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**Straight Plug**
- Captive contact

Clamp type:
- 9201-1553-0XX (Gold plated)
- 9201-9553-0XX (Passivated)

QPL version available (M39012/55)

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**Substitute the appropriate cable group number for “XX” when ordering:**

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<thead>
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<td>RG180, RG195, M17/95</td>
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<td>19</td>
<td></td>
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<td>RG174DS, RG316DS, M17/151, M17/152, Times RD-316</td>
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</tbody>
</table>
SMA Cable Plugs for Flexible Cable
Click on part number to go directly to cable assembly instructions

Right Angle Plugs

**Right Angle Plug**
- Captive contact

Crimp type:
9043-1523-0XX (Gold plated)
9043-9523-0XX (Passivated)

Solder type:
9043-1533-0XX (Gold plated)

---

**Right Angle Plug**
- Captive contact

Clamp type:
9243-1553-0XX (Gold plated)
9243-9553-0XX (Passivated)

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</table>
**SMA Cable Jacks for Semi-Rigid Cable**

Click on part number to go directly to cable assembly instructions

**Straight Jack**
- Direct solder attachment
- Noncaptive contact

For .085” semi-rigid (A = .089):
9402-1083-010 (Gold plated)
9402-7083-010 (Nickel plated)

For .141” semi-rigid (A = .144):
9402-1083-009 (Gold plated)
9402-7083-009 (Nickel plated)

---

**Straight Jack**
- Direct solder attachment
- Captive contact for one-step cable assembly

For .085” semi-rigid (A = .089):
9402-1583-010 (Gold plated)
9402-7583-010 (Nickel plated)

For .141” semi-rigid (A = .144):
9402-1583-009 (Gold plated)
9402-7583-009 (Nickel plated)

---

**Straight Jack**
- Solder-clamp attachment
- Captive contact

For .085” semi-rigid:
9502-1593-010 (Gold plated)
9502-9593-010 (Passivated)

For .141” semi-rigid:
9502-1593-009 (Gold plated)
9502-9593-009 (Passivated)
SMA Cable Jacks for Flexible Cable
Click on part number to go directly to cable assembly instructions

**Straight Jack**
- Noncaptive contact
- Crimp type:
  - 9002-1023-0XX (Gold plated)
  - 9002-9023-0XX (Passivated)
- Solder type:
  - 9002-1033-0XX (Gold plated)

**Straight Jack**
- Captive contact
- Crimp type:
  - 9102-1573-0XX (Gold plated)
  - 9102-9573-0XX (Passivated)

**Straight Jack**
- Captive contact
- Clamp type:
  - 9202-1553-0XX (Gold plated)
  - 9202-9553-0XX (Passivated)

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</table>
SMA Bulkhead Jacks for Semi-Rigid Cable
Click on part number to go directly to cable assembly instructions

### Straight Jacks

- Direct solder attachment
- With mounting gasket
- Noncaptive contact

For .085” semi-rigid (A = .089):
- **9453-1083-010** (Gold plated)
- **9453-7083-010** (Nickel plated)

For .141” semi-rigid (A = .144):
- **9453-1083-009** (Gold plated)
- **9453-7083-009** (Nickel plated)

### Right Angle Jack

- Direct solder attachment
- Captive contact

For .085” semi-rigid:
- **9530-1593-010** (Gold plated)
- **9530-9593-010** (Passivated)

For .141” semi-rigid:
- **9530-1593-009** (Gold plated)
- **9530-9593-009** (Passivated)

QPL version available (M39012/83)

### Right Angle Jack

- Direct solder attachment

For .085” semi-rigid (A = .089):
- **9613-1563-010** (Gold plated)
- **9613-7563-010** (Nickel plated)

For .141” semi-rigid (A = .144):
- **9613-1563-009** (Gold plated)
- **9613-7563-009** (Nickel plated)
SMA Bulkhead Jacks for Flexible Cable
Click on part number to go directly to cable assembly instructions

Straight Jacks

**Straight Bulkhead Jack**
- Noncaptive contact
  - Crimp type:
    - 9030-1023-0XX (Gold plated)
    - 9030-9023-0XX (Passivated)
  - Solder type:
    - 9030-1033-0XX (Gold plated)

**Straight Bulkhead Jack**
- Captive contact
  - Crimp type:
    - 9130-1573-0XX (Gold plated)
    - 9130-9573-0XX (Passivated)

**Straight Bulkhead Jack**
- Captive contact
  - Clamp type:
    - 9230-1553-0XX (Gold plated)
    - 9230-9553-0XX (Passivated)
  - QPL version available (M39012/59)

Right Angle Jack

**Right Angle Bulkhead Jack**
- Crimp type:
  - 9613-1523-0XX (Gold plated)
  - 9613-9523-0XX (Passivated)

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Substitute the appropriate cable group number for “XX” when ordering:
SMA Panel Jacks for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

Straight Jacks

- Direct solder attachment
- Square flange
- Noncaptive contact
For .085” semi-rigid (A = .089):
  9431-1083-010 (Gold plated)
  9431-7083-010 (Nickel plated)
For .141” semi-rigid (A = .144):
  9431-1083-009 (Gold plated)
  9431-7083-009 (Nickel plated)

- Direct solder attachment
- Square flange
- Captive contact for one-step cable assembly
For .085” semi-rigid (A = .089):
  9431-1583-010 (Gold plated)
  9431-7583-010 (Nickel plated)
For .141” semi-rigid (A = .144)
  9431-1583-009 (Gold plated)
  9431-7583-009 (Nickel plated)

- Direct solder attachment
- 2-hole flange
- Noncaptive contact
For .085” semi-rigid (A = .089):
  9441-1083-010 (Gold plated)
  9441-7083-010 (Nickel plated)
For .141” semi-rigid (A = .144):
  9441-1083-009 (Gold plated)
  9441-7083-009 (Nickel plated)

- Direct solder attachment
- 2-hole flange
- Captive contact for one-step cable assembly
For .085” semi-rigid (A = .089):
  9441-1583-010 (Gold plated)
  9441-7583-010 (Nickel plated)
For .141” semi-rigid (A = .144):
  9441-1583-009 (Gold plated)
  9441-7583-009 (Nickel plated)
SMA Panel Jacks for Flexible Cable

Click on part number to go directly to cable assembly instructions

Straight Jacks

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Substitute the appropriate cable group number for “XX” when ordering:

**Straight Panel Jack**
- Noncaptive contact
- Square flange

Crimp type:
- 9031-1023-0XX (Gold plated)
- 9031-9023-0XX (Passivated)

Solder type:
- 9031-1033-0XX (Gold plated)

**Straight Panel Jack**
- Captive contact
- Square flange

Crimp type:
- 9131-1573-0XX (Gold plated)
- 9131-9573-0XX (Passivated)

**Straight Panel Jack**
- Captive contact
- Square flange

Clamp type:
- 9231-1553-0XX (Gold plated)
- 9231-9553-0XX (Passivated)
SMA Straight Panel Jack Receptacles

Extended Contact and Insulator

- Extended contact and insulator
- 1/2” square flange

Captive contact:
- 9004-1113-000 (Gold plated)
- 9004-9113-000 (Passivated)

Noncaptive contact:
- 9004-1213-000 (Gold plated)
- 9004-9213-000 (Passivated)

- Extended contact and insulator
- 2-hole flange

Captive contact:
- 9008-1113-000 (Gold plated)
- 9008-9113-000 (Passivated)

Noncaptive contact:
- 9008-1213-000 (Gold plated)
- 9008-9213-000 (Passivated)

- Extended contact and insulator
- 3/8” square flange

Captive contact:
- 9076-1113-000 (Gold plated)
- 9076-9113-000 (Passivated)

Noncaptive contact:
- 9076-1213-000 (Gold plated)
- 9076-9213-000 (Passivated)

- Extended contact and insulator
- Rectangular flange

Captive contact:
- 9007-1113-000 (Gold plated)
- 9007-9113-000 (Passivated)

Noncaptive contact:
- 9007-1213-000 (Gold plated)
- 9007-9213-000 (Passivated)
SMA Straight Panel Jack Receptacles

**Solder Pot Contact**

- **Straight Panel Jack Receptacle**
  - Solder pot contact
  - 1/2” square flange

  Captive contact:
  - 9404-1113-000 (Gold plated)
  - 9404-9113-000 (Passivated)

  QPL version available (M39012/60)

- **Straight Panel Jack Receptacle**
  - Solder pot contact
  - 2-hole flange

  Captive contact (A = .030):
  - 9408-1113-000 (Gold plated)
  - 9408-9113-000 (Passivated)

  Captive contact (A = .000):
  - 9408-1113-002 (Gold plated)
  - 9408-9113-002 (Passivated)

  QPL version available (M39012/60)

- **Straight Panel Jack Receptacle**
  - Solder pot contact
  - 3/8” square flange

  Captive contact:
  - 9476-1113-000 (Gold plated)
  - 9476-9113-000 (Passivated)

- **Straight Panel Jack Receptacle**
  - Solder pot contact
  - Rectangular flange

  Captive contact:
  - 9407-1113-000 (Gold plated)
  - 9407-9113-000 (Passivated)
SMA Straight Panel Jack Receptacles

**Straight Panel Jack Receptacle**
- Tab contact
- 1/2” square flange
Captive contact:
9104-1113-000 (Gold plated)
9104-9113-000 (Passivated)
Noncaptive contact:
9104-1213-000 (Gold plated)
9104-9213-000 (Passivated)

**Straight Panel Jack Receptacle**
- Tab contact
- 2-hole flange
Captive contact:
9108-1113-000 (Gold plated)
9108-9113-000 (Passivated)
Noncaptive contact:
9108-1213-000 (Gold plated)
9108-9213-000 (Passivated)

**Straight Panel Jack Receptacle**
- Tab contact
- 3/8” square flange
Captive contact:
9176-1113-000 (Gold plated)
9176-9113-000 (Passivated)
Noncaptive contact:
9176-1213-000 (Gold plated)
9176-9213-000 (Passivated)

**Straight Panel Jack Receptacle**
- Tab contact
- Rectangular flange
Captive contact:
9107-1113-000 (Gold plated)
9107-9113-000 (Passivated)
Noncaptive contact:
9107-1213-000 (Gold plated)
9107-9213-000 (Passivated)
SMA Straight Panel Jack Receptacles

Slotted Contact

**Straight Panel Jack Receptacle**
- Slotted contact
- 1/2” square flange

**Dim. A**

<table>
<thead>
<tr>
<th>Captive contact:</th>
<th>Noncaptive contact:</th>
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<tbody>
<tr>
<td>.012 9204-1113-002 (Gold plated)</td>
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<tr>
<td>9204-9113-002 (Passivated)</td>
<td>9204-9213-002 (Passivated)</td>
</tr>
<tr>
<td>.018 9204-1113-001 (Gold plated)</td>
<td>.018 9204-1213-001 (Gold plated)</td>
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<tr>
<td>9204-9113-001 (Passivated)</td>
<td>9204-9213-001 (Passivated)</td>
</tr>
<tr>
<td>.025 9204-1113-003 (Gold plated)</td>
<td>.025 9204-1213-003 (Gold plated)</td>
</tr>
<tr>
<td>9204-9113-003 (Passivated)</td>
<td>9204-9213-003 (Passivated)</td>
</tr>
</tbody>
</table>

**Straight Panel Jack Receptacle**
- Slotted contact
- 2-hole flange

**Dim. A**

<table>
<thead>
<tr>
<th>Captive contact:</th>
<th>Noncaptive contact:</th>
</tr>
</thead>
<tbody>
<tr>
<td>.012 9208-1113-000 (Gold plated)</td>
<td>.012 9208-1213-000 (Gold plated)</td>
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<tr>
<td>9208-9113-000 (Passivated)</td>
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<tr>
<td>.018 9208-1113-001 (Gold plated)</td>
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<tr>
<td>9208-9113-001 (Passivated)</td>
<td>9208-9213-001 (Passivated)</td>
</tr>
<tr>
<td>.025 9208-1113-002 (Gold plated)</td>
<td>.025 9208-1213-002 (Gold plated)</td>
</tr>
<tr>
<td>9208-9113-002 (Passivated)</td>
<td>9208-9213-002 (Passivated)</td>
</tr>
</tbody>
</table>
SMA Right Angle Panel Jack Receptacles

**Solder Pot Contact**

**Right Angle Panel Jack Receptacle**
- Solder pot contact
- 1/2” square flange

9424-1513-000 (Gold plated)
9424-9513-000 (Passivated)

**Low Profile Right Angle Panel Jack Receptacle**
- Solder pot contact
- 1/2” square flange

9425-1513-000 (Gold plated)
9425-9513-000 (Passivated)

**Tab Contact**

**Right Angle Panel Jack Receptacle**
- Tab contact
- 1/2” hole flange

9124-1513-000 (Gold plated)
9124-9513-000 (Passivated)

**Right Angle Panel Jack Receptacle**
- Tab contact
- 2-hole flange

9126-1513-000 (Gold plated)
9126-9513-000 (Passivated)
SMA Receptacles for .025" Microstrip

Standard SMA receptacles with tab contacts have the tab milled from a .050" diameter round contact. This .050" diameter is flush with the rear insulator of the connector. When these connectors are used with .025" thick microstrip, a capacitive coupling can be introduced because of the close proximity of the microstrip ground plane to the outer diameter of the contact.

These receptacles eliminate the coupling by reducing the contact rear diameter to .025". The insulator diameter at the rear of the connector is reduced to .083" to maintain 50Ω impedance.

Tab Contact

Straight Jack Receptacle
- 1/2" square flange

Captive contact:
9114-1113-000 (Gold plated)
9114-9113-000 (Passivated)

Straight Jack Receptacle
- 2-hole flange

Captive contact:
9118-1113-000 (Gold plated)
9118-9113-000 (Passivated)

Straight Jack Receptacle
- Rectangular flange

Captive contact:
9117-1113-000 (Gold plated)
9117-9113-000 (Passivated)

Straight Jack Receptacle
- Knurl mount

Captive contact:
9163-1113-000 (Gold plated)
9163-9113-000 (Passivated)
SMA Receptacles for .010" Microstrip

These connectors have .010" diameter contact extensions for good electrical transition to narrow microstrip lines. The reduced-diameter insulators are extended beyond the flange to maintain 50Ω impedance through the microstrip package wall. All have captive contacts.

### Round Contact

#### Straight Jack Receptacle
- 1/2” square flange

A = .057:
- 9304-1113-014 (Gold plated)
- 9304-9113-014 (Passivated)

A = .125:
- 9304-1113-013 (Gold plated)
- 9304-9113-013 (Passivated)

#### Straight Jack Receptacle
- 2-hole flange

A = .057:
- 9308-1113-003 (Gold plated)
- 9308-9113-003 (Passivated)

A = .125:
- 9308-1113-001 (Gold plated)
- 9308-9113-001 (Passivated)

#### Straight Jack Receptacle
- 3/8” square flange

A = .057:
- 9376-1113-002 (Gold plated)
- 9376-9113-002 (Passivated)

A = .125:
- 9376-1113-001 (Gold plated)
- 9376-9113-001 (Passivated)

#### Straight Jack Receptacle
- Rectangular flange

A = .057:
- 9307-1113-002 (Gold plated)
- 9307-9113-002 (Passivated)

A = .125:
- 9307-1113-001 (Gold plated)
- 9307-9113-001 (Passivated)
SMA Panel Plug Receptacles

Straight—Extended Contact and Insulator

Straight Panel Plug Receptacle

- Extended contact and insulator
- 1/2” square flange

Captive contact:
9009-1113-000 (Gold plated)
9009-9113-000 (Passivated)

Noncaptive contact:
9009-1213-000 (Gold plated)
9009-9213-000 (Passivated)

---

Straight Panel Plug Receptacle

- Extended contact and insulator
- 2-hole flange

Captive contact:
9055-1113-000 (Gold plated)
9055-9113-000 (Passivated)

Noncaptive contact:
9055-1213-000 (Gold plated)
9055-9213-000 (Passivated)
**SMA Panel Plug Receptacles**

**Straight—Solder Pot Contact**

- **Straight Panel Plug Receptacle**
  - Solder pot contact
  - 1/2” square flange

Captive contact:
- 9409-1113-000 (Gold plated)
- 9409-9113-000 (Passivated)

**Right Angle—Solder Pot Contact**

- **Right Angle Panel Plug Receptacle**
  - Solder pot contact
  - 1/2” square flange

9454-1513-000 (Gold plated)
9454-9513-000 (Passivated)
SMA Panel Plug Receptacles

Straight—Tab Contact

Straight Panel Plug Receptacle
- Tab contact
- 1/2” square flange
Captive contact:
9109-1113-000 (Gold plated)
9109-9113-000 (Passivated)
Noncaptive contact:
9109-1213-000 (Gold plated)
9109-9213-000 (Passivated)

Straight Panel Plug Receptacle
- Tab contact
- 2-hole flange
Captive contact:
9155-1113-000 (Gold plated)
9155-9113-000 (Passivated)
Noncaptive contact:
9155-1213-000 (Gold plated)
9155-9213-000 (Passivated)

Right Angle—Tab Contact

Right Angle Panel Plug Receptacle
- Tab contact
- 1/2” square flange
9154-1513-000 (Gold plated)
9154-9513-000 (Passivated)
SMA Bulkhead Jack Receptacles

Straight—Solder Pot Contact

Straight Bulkhead Jack Receptacle
- Solder pot contact
- Rear mount

Captive contact:
9412-1113-000 (Gold plated)
9412-9113-000 (Passivated)

Straight Bulkhead Jack Receptacle
- Solder pot contact
- Rear mount
- With mounting gasket

Captive contact:
9432-1113-000 (Gold plated)
9432-9113-000 (Passivated)
QPL version available (M39012/61)

Straight Bulkhead Jack Receptacle
- Solder pot contact
- Front mount

Captive contact:
9422-1113-000 (Gold plated)
9422-9113-000 (Passivated)
QPL version available (M39012/61)

Right Angle—Solder Pot Contact

Right Angle Bulkhead Jack Receptacle
- Solder pot contact
- Front mount

Captive contact:
9609-1513-000 (Gold plated)
9609-9513-000 (Passivated)
SMA Bulkhead Jack Receptacles

Straight—Extended Contact and Insulator

**Straight Bulkhead Jack Receptacle**
- Post contact
- Round body
- Provided with two mounting nuts and one lockwasher

Captive contact:
- 9013-1113-000 (Gold plated)
- 9013-9113-000 (Passivated)

---

**Straight Bulkhead Jack Receptacle**
- Post contact
- D-flatted body
- Provided with two mounting nuts and one lockwasher

Captive contact:
- 9056-1113-000 (Gold plated)
- 9056-9113-000 (Passivated)

---

**Straight—Solder Pot Contact**

**Straight Bulkhead Jack Receptacle**
- Solder pot contact
- Round body
- Provided with two mounting nuts and one lockwasher

Captive contact:
- 9413-1113-000 (Gold plated)
- 9413-9113-000 (Passivated)

---

**Straight Bulkhead Jack Receptacle**
- Solder pot contact
- D-flatted body
- Provided with two mounting nuts and one lockwasher

Captive contact:
- 9456-1113-002 (Gold plated)
- 9456-9113-002 (Passivated)
SMA Knurl Mount Receptacles

These knurl mount receptacles can provide an economical alternative to flange mounted connectors, and are especially useful in dense packaging applications. They should be used in panels at least .100" thick.

**Straight Jack—Extended Contact and Insulator**

- Extended contact and insulator
- Captive contact:
  - 9033-1113-000 (Gold plated)
  - 9033-9113-000 (Passivated)
- Noncaptive contact:
  - 9033-1213-000 (Gold plated)
  - 9033-9213-000 (Passivated)

**Straight Jack—Solder Pot Contact**

- Solder pot contact
- Captive contact:
  - 9433-1113-000 (Gold plated)
  - 9433-9113-000 (Passivated)

**Straight Jack—Tab Contact**

- Tab contact
- Captive contact:
  - 9133-1113-000 (Gold plated)
  - 9133-9113-000 (Passivated)
- Noncaptive contact:
  - 9133-1213-000 (Gold plated)
  - 9133-9213-000 (Passivated)

**Straight Plug—Tab Contact**

- Tab contact
- Captive contact:
  - 9139-1113-000 (Gold plated)
  - 9139-9113-000 (Passivated)
- Noncaptive contact:
  - 9139-1213-000 (Gold plated)
  - 9139-9213-000 (Passivated)
SMA P.C. Board Receptacles

**Straight Jack**

**Straight Jack Receptacle**

9650-1113-000 (Gold plated)

**Right Angle Jack**

**Right Angle Jack Receptacle**

9647-1513-000 (Gold plated)

**Straight Plug**

**Straight Plug Receptacle**

9649-1113-000 (Gold plated)

**Right Angle Plug**

**Right Angle Plug Receptacle**

9646-1513-000 (Gold plated)
## SMA Stripline Receptacles

### Straight Jacks

- **Standard flange**
- **Noncaptive contact**

<table>
<thead>
<tr>
<th>Dim. A</th>
<th>Part Number</th>
<th>Finish</th>
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<td>9003-9213-001</td>
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<td>.063</td>
<td>9003-1213-002</td>
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<td>9003-9213-002</td>
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<td>.125</td>
<td>9003-1213-003</td>
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</tr>
<tr>
<td></td>
<td>9003-9213-003</td>
<td>(Passivated)</td>
</tr>
</tbody>
</table>

### Right Angle Jack

- **Small diameter flange**
- **Noncaptive contact**

<table>
<thead>
<tr>
<th>Dim. A</th>
<th>Part Number</th>
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<tbody>
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<td>(Gold plated)</td>
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<td></td>
<td>9610-9213-002</td>
<td>(Passivated)</td>
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<tr>
<td>.125</td>
<td>9610-1213-003</td>
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<td></td>
<td>9610-9213-003</td>
<td>(Passivated)</td>
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</tbody>
</table>

### Straight Plug

- **Standard flange**
- **Noncaptive contact**

<table>
<thead>
<tr>
<th>Dim. A</th>
<th>Part Number</th>
<th>Finish</th>
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</thead>
<tbody>
<tr>
<td>.031</td>
<td>9034-1213-001</td>
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<tr>
<td></td>
<td>9034-9213-001</td>
<td>(Passivated)</td>
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<tr>
<td>.063</td>
<td>9034-1213-002</td>
<td>(Gold plated)</td>
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<td>(Passivated)</td>
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<tr>
<td>.125</td>
<td>9034-1213-003</td>
<td>(Gold plated)</td>
</tr>
<tr>
<td></td>
<td>9034-9213-003</td>
<td>(Passivated)</td>
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</tbody>
</table>
SMA Hermetic Seal Launchers

AEP SMA hermetic seal launchers are designed to fit hermetic seals with .012" to .036" pin diameters. Connectors for use with .012—.018" pins feature an internal body structure that compensates electrically for the stepdown in diameter from the connector interface to the seal outer diameter, as shown in the illustration. These units also incorporate a conductive-elastomer EMI gasket to prevent RF leakage at the interface between the connector flange and the MIC package.

Connectors for seals with .020" or .036" pin diameters have straight-through body geometry, and do not use EMI gaskets.

Passivated stainless steel body finish is standard for this series; gold-plated bodies are available as an option.

Electrical Performance Data

Test setup: Two connectors (P/N 9044-9513-000) mounted back-to-back on fixture incorporating hermetic seal (P/N 920-55). Precision SMA plug termination used as load.

The VSWR plot below is for the connector/fixture combination; data for a single connector can be extrapolated by taking the square root of the reading at a given frequency. Insertion loss readings should be divided by two to obtain performance for a single connector.

Electrical performance in actual use may vary based on the characteristics of the pin-to-line transition.

Dotted line = VSWR \((1.05 + .005F [\text{GHz}])^2\)
Max. VSWR DC-18 GHz: 1.23: 1 @ 13.93 GHz
Max. VSWR DC-26.5 GHz: 1.28: 1 @ 23.74 GHz

See next page for hermetic seal specifications and mounting dimensions.
Hermetic Seal Specifications

Materials:

**All metal parts**: Kovar.

**Glass**: Corning glass as noted:

<table>
<thead>
<tr>
<th>P/N</th>
<th>Glass type</th>
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<tbody>
<tr>
<td>920-55</td>
<td>7052</td>
</tr>
<tr>
<td>920-56</td>
<td>7070</td>
</tr>
<tr>
<td>920-69</td>
<td>7052</td>
</tr>
<tr>
<td>920-82</td>
<td>7070</td>
</tr>
<tr>
<td>920-92</td>
<td>7052</td>
</tr>
</tbody>
</table>

Finish:

**All metal parts**: Gold plated per MIL-G-45204 type II, grade C, class 1, over nickel per MIL-C-26074, class 1, over copper per MIL-C-14550.

Hermeticity:

Greater than $1 \times 10^{-8}$ cc/second @ 1 atmosphere.

Solderability:

Per MIL-Std-202, Method 209.

Meniscus:

.005" max.

Pin concentricity:

.003" T.I.R.

Temperature range:

-65–250˚ C.

Impedance:

$50 \pm 1\Omega$

Frequency range:

DC-26 GHz.

Insertion loss:

.1 dB max. to 12.4 GHz;
.2 dB max. to 18 GHz;
.25 dB max. to 26 GHz.

VSWR:

Dependent on application.

Voltage rating:

335 VRMS max. @ sea level.

Current:

500 mA.

Dielectric Withstanding Voltage:

1000 VRMS @ sea level.

Insulation resistance:

100K megohms (@25˚ C)

Mounting Dimensions

<table>
<thead>
<tr>
<th>P/N</th>
<th>A (±.001)</th>
<th>B (±.001)</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>920-55</td>
<td>.127</td>
<td>.102</td>
<td>.070</td>
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<td>920-56</td>
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<td>920-69</td>
<td>.188</td>
<td>.163</td>
<td>.060</td>
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<tr>
<td>920-92</td>
<td>.188</td>
<td>.163</td>
<td>.075</td>
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</tbody>
</table>

Notes:

1) Front of seal and solder should be flush to .005" above mounting surface.

2) Diameters ("D") in chart are for 50Ω impedance; Teflon dielectric diameters are for applications which use a support insulator for the hermetic seal pin (user option).
SMA Hermetic Seal Launchers
For hermetic seals with .012" diameter pins

Straight Jacks

1/2" Square Flange
9045-9513-000
Optional packaging:
9145-9513-000 (Includes 920-55)
9245-9513-000 (Includes 920-55 and 907-111-1)
9345-9513-000 (Includes 907-111-1)

3/8" Square Flange
9079-9513-000
Optional packaging:
9179-9513-000 (Includes 920-55)
9279-9513-000 (Includes 920-55 and 907-111-1)
9379-9513-000 (Includes 907-111-1)

Rectangular Flange
9062-9513-000
Optional packaging:
9162-9513-000 (Includes 920-55)
9262-9513-000 (Includes 920-55 and 907-111-1)
9362-9513-000 (Includes 907-111-1)

These units accept hermetic seal pin diameters .011–.015"

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-55

Accessory Contact
P/N 907-111-1

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550
SMA Hermetic Seal Launchers
For hermetic seals with .012" diameter pins

**Straight Jacks**

- **2-Hole Flange**
  - 9044-9513-000
  - Optional packaging:
    - 9144-9513-000 (Includes 920-55)
    - 9244-9513-000 (Includes 920-55 and 907-111-1)
    - 9344-9513-000 (Includes 907-111-1)

- **Narrow 2-Hole Flange**
  - No EMI gasket
  - 9080-9513-000
  - Optional packaging:
    - 9180-9513-000 (Includes 920-55)
    - 9280-9513-000 (Includes 920-55 and 907-111-1)
    - 9380-9513-000 (Includes 907-111-1)

These units accept hermetic seal pin diameters .011–.015"

**Hermetic Seal and Accessory Contact**

- **Solder-In Hermetic Seal**
  - P/N 920-55

- **Accessory Contact**
  - P/N 907-111-1

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550
SMA Hermetic Seal Launchers
For hermetic seals with .012” diameter pins

Straight Plugs

1/2” Square Flange
9047-9513-000
Optional packaging:
9147-9513-000 (Includes 920-55)
9247-9513-000 (Includes 920-55 and 907-111-1)
9347-9513-000 (Includes 907-111-1)

2-Hole Flange
9046-9513-000
Optional packaging:
9146-9513-000 (Includes 920-55)
9246-9513-000 (Includes 920-55 and 907-111-1)
9346-9513-000 (Includes 907-111-11)

These units accept hermetic seal pin diameters .011–.015”

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-55

Accessory Contact
P/N 907-111-1

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550
SMA Hermetic Seal Launchers
For hermetic seals with .015" diameter pins

Straight Jacks

1/2” Square Flange
9045-9513-001
Optional packaging:
9145-9513-001 (Includes 920-82)
9245-9513-001 (Includes 920-82 and 907-111-5)
9345-9513-001 (Includes 907-111-5)

3/8” Square Flange
9079-9513-001
Optional packaging:
9179-9513-001 (Includes 920-82)
9279-9513-001 (Includes 920-82 and 907-111-5)
9379-9513-001 (Includes 907-111-5)

Rectangular Flange
9062-9513-001
Optional packaging:
9162-9513-001 (Includes 920-82)
9262-9513-001 (Includes 920-82 and 907-111-5)
9362-9513-001 (Includes 907-111-5)

These units accept hermetic seal pin diameters .014-.016"

Solder-In Hermetic Seal
P/N 920-82

Accessory Contact
P/N 907-111-5

Material: Beryllium copper.
Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.
**SMA Hermetic Seal Launchers**

For hermetic seals with .015" diameter pins

### Straight Jacks

**2-Hole Flange**

9044-9513-001

Optional packaging:
9144-9513-001 (Includes 920-82)
9244-9513-001 (Includes 920-82 and 907-111-5)
9344-9513-001 (Includes 907-111-5)

**Narrow 2-Hole Flange**

No EMI gasket
9080-9513-001

Optional packaging:
9180-9513-001 (Includes 920-82)
9280-9513-001 (Includes 920-82 and 907-111-5)
9380-9513-001 (Includes 907-111-5)

These units accept hermetic seal pin diameters .014–.016"

### Hermetic Seal and Accessory Contact

**Solder-In Hermetic Seal**

P/N 920-82

**Accessory Contact**

P/N 907-111-5

Material: Beryllium copper.
Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.
SMA Hermetic Seal Launchers
For hermetic seals with .015" diameter pins

Straight Plugs

1/2" Square Flange
9047-9513-001
Optional packaging:
9147-9513-001  (Includes 920-82)
9247-9513-001  (Includes 920-82 and 907-111-5)
9347-9513-001  (Includes 907-111-5)

2-Hole Flange
9046-9513-001
Optional packaging:
9146-9513-001  (Includes 920-82)
9246-9513-001  (Includes 920-82 and 907-111-5)
9346-9513-001  (Includes 907-111-5)

These units accept hermetic seal pin diameters .014–.016"

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-82

Accessory Contact
P/N 907-111-5

Material: Beryllium copper.
Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.
SMA Hermetic Seal Launchers
For hermetic seals with .018" diameter pins

### Straight Jacks

**1/2" Square Flange**

- **9049-9513-000**
- Optional packaging:
  - 9149-9513-000 (Includes 920-56)
  - 9249-9513-000 (Includes 920-56 and 907-111-2)
  - 9349-9513-000 (Includes 907-111-2)

**3/8" Square Flange**

- **9074-9513-000**
- Optional packaging:
  - 9174-9513-000 (Includes 920-56)
  - 9274-9513-000 (Includes 920-56 and 907-111-2)
  - 9374-9513-000 (Includes 907-111-2)

**Rectangular Flange**

- **9068-9513-000**
- Optional packaging:
  - 9168-9513-000 (Includes 920-56)
  - 9268-9513-000 (Includes 920-56 and 907-111-2)
  - 9368-9513-000 (Includes 907-111-2)

These units accept hermetic seal pin diameters .016–.020"

### Hermetic Seal and Accessory Contact

**Solder-In Hermetic Seal**

- **P/N 920-56**

**Accessory Contact**

- **P/N 907-111-2**

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450
SMA Hermetic Seal Launchers
For hermetic seals with .018" diameter pins

Straight Jacks

2-Hole Flange
9048-9513-000
Optional packaging:
9148-9513-000 (Includes 920-56)
9248-9513-000 (Includes 920-56 and 907-111-2)
9348-9513-000 (Includes 907-111-2)

Narrow 2-Hole Flange
No EMI gasket
9081-9513-000
Optional packaging:
9181-9513-000 (Includes 920-56)
9281-9513-000 (Includes 920-56 and 907-111-2)
9381-9513-000 (Includes 907-111-2)

These units accept hermetic seal pin diameters .016–.020"

Hermetic Seal and Accessory Contact

Solder-In Hermetic Seal
P/N 920-56

Accessory Contact
P/N 907-111-2

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450
SMA Hermetic Seal Launchers
For hermetic seals with .018" diameter pins

**Straight Plugs**

**1/2" Square Flange**

9051-9513-000
Optional packaging:
9151-9513-000 (Includes 920-56)
9251-9513-000 (Includes 920-56 and 907-111-2)
9351-9513-000 (Includes 907-111-2)

**2-Hole Flange**

9050-9513-000
Optional packaging:
9150-9513-000 (Includes 920-56)
9250-9513-000 (Includes 920-56 and 907-111-2)
9350-9513-000 (Includes 907-111-2)

These units accept hermetic seal pin diameters .016–.020"

**Hermetic Seal and Accessory Contact**

**Solder-In Hermetic Seal**

P/N 920-56

**Accessory Contact**

P/N 907-111-2

Material: Beryllium copper
Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450
SMA Hermetic Seal Launchers
For hermetic seals with .020" diameter pins

Straight Jacks

**Straight Jack 1/2" Square Flange**
9504-9113-031
9504-9113-034  (Includes 920-69)

**Straight Jack 3/8" Square Flange**
9576-9113-001
9576-9113-002  (Includes 920-69)

**Straight Jack Rectangular Flange**
9507-9113-003
9507-9113-004  (Includes 920-69)

Hermetic Seal and Accessory Contact

**Solder-In Hermetic Seal**
P/N 920-69
SMA Hermetic Seal Launchers
For hermetic seals with .020" diameter pins

**Straight Jacks**

**Straight Jack 2-Hole Flange**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>9508-9113-002</td>
</tr>
<tr>
<td></td>
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<td>9508-9113-003</td>
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**Straight Jack Screw-In Mounting**

<table>
<thead>
<tr>
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<tr>
<td>9513-9113-012</td>
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</table>

These connectors require a minimum package wall thickness of .250” for proper retention.

**Straight Jack Knurl Mount**

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<th>Part Numbers</th>
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<tbody>
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<td>9533-9113-003</td>
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<td>9533-9113-002</td>
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</table>

These connectors require a minimum package wall thickness of .235” for proper retention.

**Hermetic Seal and Accessory Contact**

**Solder-In Hermetic Seal**

P/N 920-69
SMA Hermetic Seal Launchers
For hermetic seals with .036" diameter pins

Straight Jacks

**Straight Jack 1/2" Square Flange**
- 9504-9113-009
- 9504-9113-035 (Includes 920-92)

**Straight Jack 3/8" Square Flange**
- 9576-9113-003
- 9576-9113-004 (Includes 920-92)

**Straight Jack Rectangular Flange**
- 9507-9113-005
- 9507-9113-006 (Includes 920-92)

Hermetic Seal and Accessory Contact

**Solder-In Hermetic Seal**
P/N 920-92
SMA Hermetic Seal Launchers
For hermetic seals with .036" diameter pins

Straight Jacks

**Straight Jack 2-Hole Flange**

9508-9113-001
9508-9113-011 (Includes 920-92)

---

**Straight Jack Screw-In Mounting**

9513-9113-008
9513-9113-013 (Includes 920-92)

These connectors require a minimum package wall thickness of .250" for proper retention.

---

**Straight Jack Knurl Mount**

9533-9113-001
9533-9113-004 (Includes 920-92)

These connectors require a minimum package wall thickness of .235" for proper retention.

---

**Hermetic Seal and Accessory Contact**

**Solder-In Hermetic Seal**

P/N 920-92
**SMA Adapters**

### Straight Adapters

**Straight Jack To Jack Adapter**
- Connects two plugs

Captive contact:
- 5917-1103-000 (Gold plated)
- 5917-9103-000 (Passivated)

### Straight Bulkhead Mounted Jack To Jack Adapter

- Connects two plugs

Captive contact:
- 5909-1103-000 (Gold plated)
- 5909-9103-000 (Passivated)

### Straight Jack To Plug Adapter

- Prevents damage to equipment-mounted jacks during frequent mating and unmating

Captive contact:
- 5916-1103-603 (Gold plated)
- 5916-9103-603 (Passivated)

### Straight Plug To Plug Adapter

- Connects two jacks

Captive contact:
- 5918-1103-000 (Gold plated)
- 5918-9103-000 (Passivated)
**SMA Adapters**

**Right Angle Adapters**

**Right Angle Jack To Plug Adapter**
- Connects one jack and one plug

5919-1503-000 (Gold plated)
5919-9503-000 (Passivated)

---

**Right Angle Jack To Jack Adapter**
- Connects two plugs

5919-1503-003 (Gold plated)
5919-9503-003 (Passivated)

---

**Right Angle Plug To Plug Adapter**
- Connects two jacks

5919-1503-001 (Gold plated)
5919-9503-001 (Passivated)
SMA Adapters

Tee Adapters

**Tee Adapter**
(Unmatched Power Divider)
Jack To Plug To Jack
- Connects two plugs and one jack

5905-1503-000 (Gold plated)
5905-9503-000 (Passivated)

---

**Tee Adapter**
(Unmatched Power Divider)
Jack To Jack To Jack
- Connects three plugs

5903-1503-000 (Gold plated)
5903-9503-000 (Passivated)

---

SMA Terminations

Plug Termination

**Plug Resistive Termination**
(Dummy Load)
- VSWR 1.15: 1 max. to 18 GHz.
- Maximum average power: 1 watt
- Peak power: 1.5 watts

9620-9003-151 (Passivated)
Cable Assembly Instructions
Clamp type connectors for flexible cable

Straight Connectors—Flexible Cable

Parts list

Body assembly
Insulator
Ferrule
Compression washer
Contact (male or female)
Backnut

1. Assemble contact onto cable center conductor.
2. Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).
3. Press ferrule against compression washer.
4. Trim excess braid flush with outer diameter of compression washer and ferrule.
5. Assemble insulator over cable center conductor and dielectric.

Cable Trim Dimensions

Center conductor
Dielectric
Braid
Jacket
A
B
C

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
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<tbody>
<tr>
<td>STRAIGHT CONNECTORS</td>
<td>.100</td>
<td>.100</td>
<td>.230</td>
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<tr>
<td>RIGHT ANGLE CONNECTORS</td>
<td>.100</td>
<td>.275</td>
<td>.400</td>
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</table>

Right Angle Connectors—Flexible Cable

Parts list

Insulator
Cap
Ferrule
Compression washer
Body assembly
Backnut

1. Trim cable per trim code below; tin end of center conductor.
2. Slide backnut onto cable. Slide compression washer onto cable in the orientation shown until it stops against cable jacket.
3. Flare cable braid by rotating dielectric and slide ferrule under braid.
4. Solder center conductor into notch in rear of contact with .025-.032" diameter chisel-tip soldering iron.
5. Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.
6. Place insulator in body cavity, and press cap into place. Properly assembled cap will be slightly below end of body assembly.
Cable Assembly Instructions
Crimp type connectors for flexible cable

Straight Connectors—Captive Contact

1. Trim cable per trim code below; tin end of center conductor.
2. Slide heat-shrink tubing and crimp sleeve over cable.
3. Assemble insulator and contact onto cable dielectric and center conductor.
4. Insert cable assembly into body assembly. Tighten to 140–150 inch-ounces torque. (Hold cable/hardware assembly stationary and rotate body when tightening.)
5. Assemble insulator and contact onto cable dielectric and center conductor.
6. Solder contact to center conductor by heating rear of contact. (do not feed additional solder through inspection hole in contact).

Parts list

- Body assembly
- Insulator
- Contact (male or female)
- Heat-shrink tubing (optional)
- Crimp sleeve

Cable Trim Dimensions

<table>
<thead>
<tr>
<th>CABLE GROUP</th>
<th>HEX DIE SIZE</th>
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<tbody>
<tr>
<td>01</td>
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<td>.156</td>
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<td>05</td>
<td>.128</td>
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<td>06</td>
<td>.213</td>
</tr>
<tr>
<td>19</td>
<td>.156</td>
</tr>
</tbody>
</table>

Cable Assembly Instructions
Crimp type connectors for flexible cable

Straight Connectors—Non-captive Contact

1. Trim cable per trim code below; tin end of center conductor.
2. Slide heat-shrink tubing and crimp sleeve over cable.
3. Flare cable braid by rotating dielectric and slide cable into tail of body assembly.
4. Slide shrink tubing over crimp sleeve and shrink to fit.

Parts list

- Body assembly
- Heat-shrink tubing
- Crimp sleeve

Cable Trim Dimensions

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captive contact</td>
<td>.100</td>
<td>.470</td>
<td>.720</td>
</tr>
<tr>
<td>Non-captive contact</td>
<td>.100</td>
<td>.160</td>
<td>.390</td>
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</tbody>
</table>
Cable Assembly Instructions
Crimp type connectors for flexible cable

Right Angle Connectors—Flexible Cable

1. Trim cable per trim code below; tin end of center conductor.
2. Position cable so braid touches rear of body assembly.
3. Solder center conductor into notch in rear of contact with .025–.032" diameter chisel-tip soldering iron.
4. Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.
5. Place insulator in body cavity, and press cap into place. Properly assembled cap will be slightly below end of body assembly.
6. Insert cable assembly into contact.
7. Slide crimp sleeve forward to touch rear of body assembly.
8. Crimp braid with appropriate die size from chart below.
9. Trim cable per trim code below; tin end of center conductor.
10. Slide heat-shrink tubing and crimp sleeve over cable.
11. Slide shrink tubing over crimp sleeve and shrink to fit.

Cable Trim Dimensions

Connector Type

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>B</th>
<th>A</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Angle Connectors</td>
<td>.100</td>
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<td>.500</td>
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</table>

Crimp Die Sizes

<table>
<thead>
<tr>
<th>Cable Group</th>
<th>Hex Die Size</th>
</tr>
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<tbody>
<tr>
<td>01</td>
<td>.213</td>
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<td>03</td>
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<td>04</td>
<td>.156</td>
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<tr>
<td>05</td>
<td>.128</td>
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<tr>
<td>06</td>
<td>.213</td>
</tr>
<tr>
<td>19</td>
<td>.156</td>
</tr>
</tbody>
</table>

Parts list

- Insulator
- Cap
- Body assembly
- Heat-shrink tubing (optional)
- Crimp sleeve
- Center conductor
- Dielectric
- Braid
- Jacket
- Solder
Cable Assembly Instructions
Solder-clamp connectors for semi-rigid cable

**Straight Connectors—Semi-Rigid Cable**

**Parts list**

- Body assembly
- Solder Ferrule
- Backnut
- Insulator
- Contact (male or female)

1. Assemble the insulator and contact onto the cable dielectric and center conductor. If the insulator is not flush against the solder ferrule due to dielectric extrusion, retrim the dielectric.

2. Solder the contact to the center conductor by heating the rear of the contact (do not feed additional solder through the inspection hole in the contact).

3. Insert the cable assembly into the body assembly. Tighten to 90–100 inch-ounces torque. Hold the cable/hardware assembly stationary and rotate the body when tightening.

4. Place the insulator in the body cavity, and press the cap into place. Properly assembled caps will be slightly below the end of the body assembly.

**Right Angle Connectors—Semi-Rigid Cable**

**Parts list**

- Insulator
- Solder Ferrule
- Backnut
- Cap
- Body assembly

1. Trim the cable per the trim code below; tin the end of the center conductor.

2. Solder the cable jacket to the ferrule.

3. Insert the cable assembly into the body assembly. Tighten to 90–100 inch-ounces torque. Hold the cable/hardware assembly stationary and rotate the body when tightening.

**Cable Trim Dimensions**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight connectors</td>
<td>.100</td>
<td>.135</td>
</tr>
<tr>
<td>Right angle connectors—.085&quot; cable</td>
<td>.080</td>
<td>.170</td>
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<tr>
<td>Right angle connectors—.141&quot; cable</td>
<td>.125</td>
<td>.290</td>
</tr>
</tbody>
</table>

**Parts list**

- Jacket
- Dielectric
- Center conductor
- A
- B

**Solder-clamp connectors for semi-rigid cable**

- Trim the cable per the trim code below; tin the end of the center conductor.
- Slide the backnut over the cable. Slide the solder ferrule over the cable until it stops against the cable jacket.
- Solder the cable jacket to the ferrule.
- Insert the cable assembly into the body assembly. Tighten to 90–100 inch-ounces torque. Hold the cable/hardware assembly stationary and rotate the body when tightening.
- Solder the center conductor into the notch in the rear of the contact with a .025–.032” diameter chisel-tip soldering iron.
- Solder should cover the center conductor, but not extend over the top of the notch in the contact, or exceed the contact diameter.
- Place the insulator in the body cavity, and press the cap into place. Properly assembled caps will be slightly below the end of the body assembly.
Cable Assembly Instructions
Direct solder connectors for semi-rigid cable

**Straight Connectors—Non-captive Contact**

Parts list

1. Body assembly
2. Contact

---

1. Trim cable per trim code below; tin end of center conductor.
2. Shim to maintain proper gap between rear of contact and cable dielectric.
3. Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).

---

**Cable Trim Dimensions**

Center conductor

---

**CONNECTOR TYPE** | A  | B  
--- | --- | ---
Straight connectors | .090 | .090
Right angle connectors | .080 | .170

---

**Straight Connectors—Captive Contact**

1. Trim cable per trim code below; chamfer end of center conductor 70-90°.

---

2. Insert cable into body assembly until it stops.
   - Solder cable jacket to connector body.

---

**Right Angle Connectors**

Parts list

---

1. Insert cable into body until it stops.
   - Solder cable jacket to connector body.

---

2. Trim cable per trim code below; tin end of center conductor.
   - Insert trimmed cable into body until jacket bottoms on step inside body and center conductor is in contact slot.
   - Solder cable jacket to body assembly.

---

3. Solder center conductor into notch in rear of contact with .025-.032" diameter chisel-tip soldering iron.
   - Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.

---

3. Place insulator in body cavity, and press cap into place.
   - Properly assembled cap will be slightly below end of body assembly.
Cable Assembly Instructions
Direct solder connectors for semi-rigid cable

P/N 9301-1063-009

1. Trim cable per trim code below; point end of center conductor to 45° as shown.
2. Slide backnut over cable. Slide body over cable until trimmed end of cable jacket stops against step in body.
3. Solder cable jacket to body. Retrim cable dielectric flush with body if it has extruded due to heat from soldering.
4. Assemble gasket into groove on body.

P/N 9301-1063-109

1. Trim cable per trim code below; point end of center conductor to 45° as shown.
2. Slide backnut over cable. Slide body over cable until trimmed end of cable jacket stops against step in body.
3. Solder cable jacket to body. Retrim cable dielectric flush with body if it has extruded due to heat from soldering.
4. Assemble gasket into groove on body.

Cable Trim Dimensions

<table>
<thead>
<tr>
<th>CONNECTOR TYPE</th>
<th>A</th>
<th>B</th>
</tr>
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<tbody>
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# Assembly Tooling

## Crimp tools

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<thead>
<tr>
<th>DESCRIPTION</th>
<th>AEP P/N</th>
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<tbody>
<tr>
<td>Crimp tool with .128&quot; and .213&quot; hex dies</td>
<td>TA-0007</td>
</tr>
<tr>
<td>Crimp tool with .156&quot; hex die</td>
<td>TA-0071</td>
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<tr>
<td>Crimp tool with .105&quot; and .128&quot; hex dies</td>
<td>TA-0105</td>
</tr>
<tr>
<td>Crimp tool with .255&quot; and .068&quot; hex dies</td>
<td>TA-0190</td>
</tr>
<tr>
<td>Crimp tool with .255&quot; hex die</td>
<td>TA-0234</td>
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## Torque Wrench

<table>
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<tr>
<th>DESCRIPTION</th>
<th>AEP P/N</th>
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<tbody>
<tr>
<td>Torque wrench with 5/16&quot; jaw for SMA coupling nuts; 8 inch-pounds torque</td>
<td>TA-0397</td>
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## Capping Press

<table>
<thead>
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<th>DESCRIPTION</th>
<th>AEP P/N</th>
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<tbody>
<tr>
<td>Capping tool (arbor press) with base for SMA right angle plugs</td>
<td>Contact Factory</td>
</tr>
<tr>
<td>Capping tool (arbor press) with base for SMA right angle jacks</td>
<td>Contact Factory</td>
</tr>
</tbody>
</table>

## Mounting Dimensions

### Bulkhead Receptacles

- .257 dia.
- .238

### P.C. Board Receptacles

- .100 typ.
- .063 dia.
- .200 typ.
- .067 dia. min. (typ.)
<table>
<thead>
<tr>
<th>P/N</th>
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<tbody>
<tr>
<td>5903-1503-000</td>
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<tr>
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