PERFORMANCE SPECIFICATION SHEET

CONNECTORS, COAXIAL, RADIO FREQUENCY
(SERIES N (UNCABLED) – RECEPTACLES – JAM NUT AND FLANGE MOUNTED, SOCKET CONTACT, CLASS 2)

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-39012.

FIGURE 1. General configuration.
NOTES:
1. Dimensions are in inches. Metric equivalents are given for information only.
2. See table I for dimensions A, B, C, and D.
3. Dimensions A and B are the largest overall dimensions of the receptacles except the flange height and width on dash number 0002 or 7002.
4. All undimensioned pictorial configurations are for reference purposes only.
5. Receptacle dash number 0002 or 7002 not recommended for use on panels with greater than .071 (1.80 mm) max thickness.
6. Full threads to within .063 inch (1.60 mm) of shoulder; 1 1/2 max uneven threads to shoulder.
7. There shall be a solid barrier in the socket between the pin entry and the solder pocket to prevent solder wicking.
8. Interface is a series N socket contact in accordance with MIL-STD-348.

FIGURE 1. General configuration – Continued.
TABLE I. Dash numbers, cross-reference, and dimensions.

<table>
<thead>
<tr>
<th>Dash number</th>
<th>Type</th>
<th>Dimension</th>
<th>Inches (millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001 3/</td>
<td>Bulkhead</td>
<td>A</td>
<td>--</td>
</tr>
<tr>
<td>7001 3/</td>
<td>(front mounted – hermetic sealed)</td>
<td>B</td>
<td>1.125 (25.40)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>.702 (17.83)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D</td>
<td>1.750 (44.45)</td>
</tr>
<tr>
<td>0002 3/</td>
<td>Flange</td>
<td>A</td>
<td>1.062 (26.97)</td>
</tr>
<tr>
<td>7002 3/</td>
<td>(rear mounted)</td>
<td>B</td>
<td>.620 (15.65)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>.721 (18.31)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D</td>
<td>.075 (1.91)</td>
</tr>
<tr>
<td>0003 3/</td>
<td>Bulkhead</td>
<td>A</td>
<td>--</td>
</tr>
<tr>
<td>7003 3/</td>
<td>(rear mounted)</td>
<td>B</td>
<td>.850 (21.59)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>.912 (23.16)</td>
</tr>
</tbody>
</table>

1/ For cross-reference of dash number to superseded Part or Identifying Number (PIN) or type designation, see table III.

2/ Dimensions are in inches. Metric equivalents are given for information only.

3/ These connectors have captivated center contacts.

ENGINEERING DATA:

Nominal impedance: 50 ohms.

Frequency range: 0 to 11 GHz.

Voltage rating

1,000 volts rms maximum working voltage at sea level.

250 volts rms maximum at 70,000 feet (4.437 kPa).

Temperature rating: -65°C to +165°C.

REQUIREMENTS:

Design and configuration: See figure 1.

Force to engage and disengage:

   Longitudinal force: Not applicable.

   Torque: 6 inch-pounds (.68 Nm) maximum.

Coupling proof torque: Not applicable.

Inspection conditions: Coupling torque: 6 to 10 inch-pounds (.68 to 1.13 Nm).
Mating characteristics: In accordance with MIL-STD-348.

Contact with spring members:

Center contact (socket):

   Oversize test pin: .074 inch (1.88 mm), diameter minimum (nonclosed entry contacts only).
   Insertion depth: .125 inch (3.17 mm), minimum.
   Number of insertions: 1.

Insertion force test: Steel test pin diameter .066 inch (1.68 mm), minimum.
   Test pin finish: 16 microinches (0.406 µm).
   Insertion force: 2 pounds (8.90 N) maximum.

Withdrawal force test: Steel test pin diameter .063 inch (1.60 mm), maximum.
   Withdrawal force: 2 ounces (.56 N) minimum.
   Test pin finish: 16 microinches (0.406 µm).

Hermetic seal: Applicable to M39012/04-0001 and M39012/04-7001.
   (Leakage shall not exceed 1 x 10^-7 cm³/s of tracer gas at atmospheric pressure)

Leakage (pressurized connectors): Applicable to M39012/04-0001, M39012/04-0003, M39012/04-7001 and M39012/04-7003. The receptacle shall be mounted in its normal manner on a closed container with the mating end capped. Container interior air pressure shall be 30 psi.


Center contact retention: 6 pounds (26.69 N) minimum axial force.


Voltage standing wave ratio (VSWR): Not applicable.

Connector durability: 500 cycles minimum at 12 cycles/minute maximum. The connector shall meet the mating characteristics and force to engage and disengage requirements.
Contact resistance: In milliohms maximum.

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>After environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Center contact:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M39012/04-X001</td>
<td>4.0</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Outer contact:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M39012/04-0001</td>
<td>.2</td>
<td>Not applicable</td>
</tr>
<tr>
<td>M39012/04-7001</td>
<td>.4</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Center contact:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M39012/04-X002</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>M39012/04-X003</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Outer contact:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M39012/04-0002</td>
<td>.2</td>
<td>Not applicable</td>
</tr>
<tr>
<td>M39012/04-0003</td>
<td>.2</td>
<td>Not applicable</td>
</tr>
<tr>
<td>M39012/04-7002</td>
<td>.4</td>
<td>Not applicable</td>
</tr>
<tr>
<td>M39012/04-7003</td>
<td>.4</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Dielectric withstanding voltage: MIL-STD-202-301. 2,500 volts rms minimum at sea level.

Vibration, high frequency: MIL-STD-202-204, test condition B.


Thermal shock: MIL-STD-202-107, test condition B, except high temperature shall be +85°C. High temperature shall be +200°C for connectors using +200°C cables (see table I and III).

Moisture resistance: MIL-STD-202-106. No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes after removal from humidity.

Corona level: Not applicable

RF high potential withstanding voltage:

Voltage and frequency: 1,500 volts rms at 5 MHz.

Leakage current: Not applicable.

Cable retention force: Not applicable.

Coupling mechanism retention force: Not applicable.

RF leakage: Not applicable.
Insertion loss: Not applicable.

Part or Identifying Number (PIN): M39012/04- (dash number from table I).

**CAUTION:** THE “7000” SERIES OF DASH NUMBERS ALLOW FOR A NICKEL PLATED CONNECTOR BODY. A NICKEL PLATED BODY IS NOT FOR USE IN APPLICATIONS WHERE PASSIVE INTERMODULATION GENERATION (PIM) MAY BE A CONCERN ([http://amphenolrf.com/simple/PIM%20Paper.pdf](http://amphenolrf.com/simple/PIM%20Paper.pdf)). Silver is the preferred plating option.

Group qualification: See table II.

Cross-reference information: See table III.

<table>
<thead>
<tr>
<th>TABLE II. Group qualification, 1/, 2/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>I</td>
</tr>
<tr>
<td>II</td>
</tr>
<tr>
<td>III</td>
</tr>
</tbody>
</table>

1/ If a connector manufacturer produces a connector which meets all the requirements for two or more connector PIN (within the same series), the manufacturer may receive qualification approval for two or more connector PIN by qualifying the one connector. It is not necessary that such connectors be in the same group. Each connector, however, must be marked with its own appropriate PIN. For group qualification, the connectors must be of similar design.

2/ Connectors of the same body material and finish may only qualify connectors of the same body material and finish.

<table>
<thead>
<tr>
<th>TABLE III. Cross-reference of PIN’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred PIN</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>M39012/04-0001</td>
</tr>
<tr>
<td>M39012/04-0002</td>
</tr>
<tr>
<td>M39012/04-0003</td>
</tr>
</tbody>
</table>

1/ The superseded PIN or the type designation is for cross-reference only. Where a superseded PIN or type designation is not given, none was assigned or will be assigned. The PIN M39012/04-XXXX shall be used in all cases for marking and identifying the connector.

**Amendment notations.** The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.
Referenced documents. In addition to MIL-PRF-39012, this document references the following:

MIL-STD-202-101  
MIL-STD-202-106  
MIL-STD-202-107  
MIL-STD-202-204  
MIL-STD-202-213  
MIL-STD-202-301  
MIL-STD-202-302  
MIL-STD-348

CONCLUDING MATERIAL

Custodians:  
Army – CR  
Navy – EC  
Air Force – 85  
NASA – NA  
DLA - CC

Preparing activity:  
DLA – CC  
(Project 5935-2016-217)

Review activities:  
Army – AR, AT, EA, MI  
Navy – AS, MC, OS, SH  
Air Force – 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.