

INCH-POUND

MIL-PRF-31031/43
w/AMENDMENT 1
18 February 2010
SUPERSEDING
MIL-PRF-31031/43
10 March 2008

PERFORMANCE SPECIFICATION SHEET

CONNECTOR, ELECTRICAL, RECEPTACLE, RADIO FREQUENCY, HIGH RELIABILITY,
COAXIAL, SERIES BMZ, RIGHT ANGLE, PIN CONTACT, FOR SEMIRIGID CABLE

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-31031.

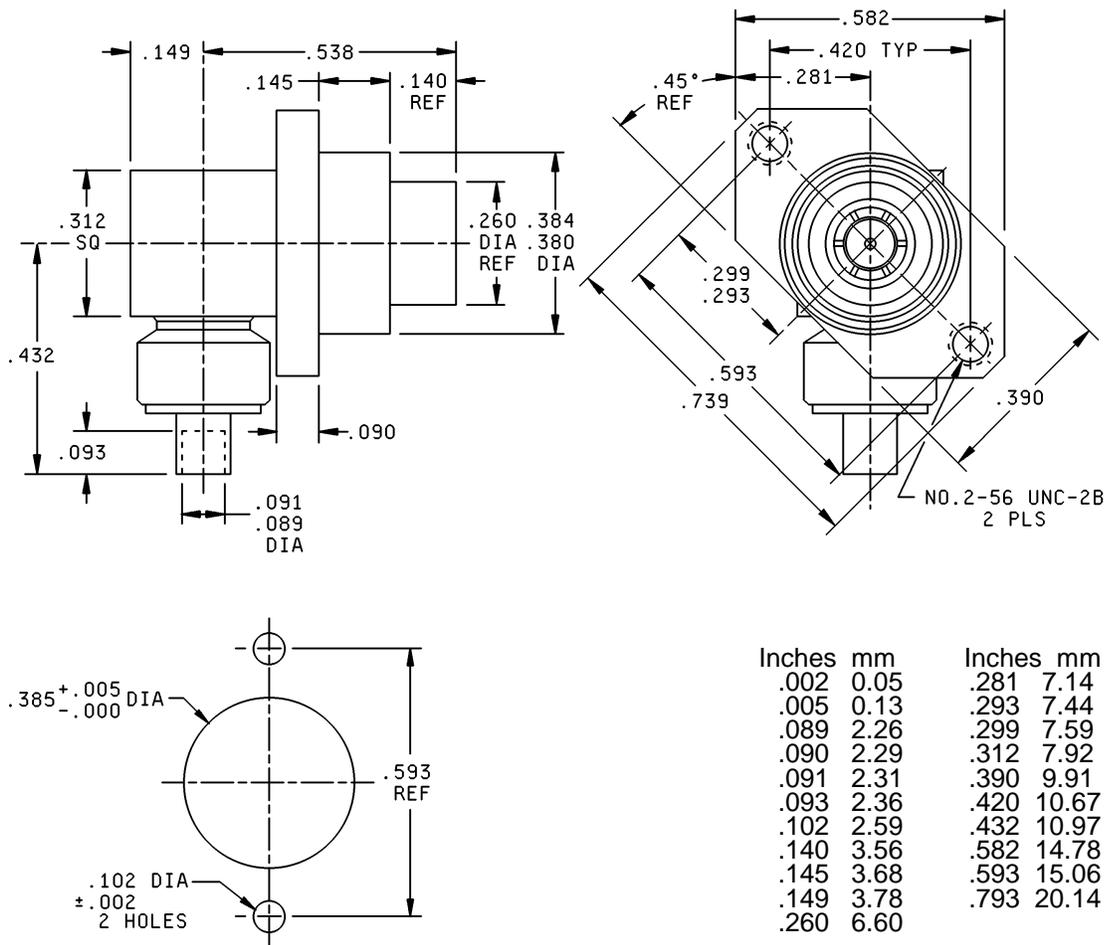


FIGURE 1. General configuration.

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NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. All undimensioned pictorial configurations are for reference purposes only.
4. Unless otherwise specified all tolerances shall be $\pm .005$ inch.
5. Wrench flats are to accommodate standard wrench opening in accordance with FED-STD-H28, appendix 10.
6. Method of assembly to the cable shall be solder.
7. Interface series BMZ, pin contact, in accordance with MIL-STD-348.

FIGURE 1. General configuration – Continued.

TABLE I. Part or Identifying Number (PIN) to cable cross-reference.

PIN M31031/43	Cable accommodation <u>1/</u> M17/
E3N01 <u>2/</u>	133-RG405 * 133-00001 through 133-00018

* Cable to be used when performing test requiring cable. All cable dash numbers in accordance with MIL-DTL-17 specification sheet accommodate this connector.

1/ MIL-DTL-17 cables are specified by the basic number. The latest version of each cable shall be applicable.

2/ All corrosion resistant steel bodied connectors shall be gold plated in accordance with MIL-DTL-45204, type II, grade C, class 1 (or equivalent as approved by the qualification and preparing activities) at least in the area of solder attachment.

ENGINEERING DATA:

Nominal impedance: 50 ohms.

Frequency range: 2 to 18 GHz (Connector performance only, frequency range is dependent on cable used).

Voltage rating:

335 V rms at sea level

85 V rms at 70,000 feet.

Temperature rating: -65°C to +165°C.

REQUIREMENTS:

Dimensions and configurations: See figure 1.

Interface dimensions: In accordance with MIL-STD-348.

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Force to engage:

Longitudinal force: 12 ounces, minimum.

Torque: Not applicable.

Coupling proof torque: Not applicable.

Hermetic seal: Not applicable.

Leakage (pressurized connectors): Not applicable.

Center contact retention: 4 pounds minimum axial force.

Radial torque: Not applicable.

Voltage standing wave ratio (VSWR): $1.12 + .010F$ (F in GHz), maximum.

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

Contact resistance (in milliohms, maximum):

	<u>Initial</u>	<u>After environmental</u>
Center contact:	4.0	4.0
Outer contact:	2.0	N/A
Outer cable conductor to body:	0.5	N/A

Dielectric withstanding voltage: 1000 V rms, minimum.
250 V rms at 70,000 feet.

Vibration, high frequency: MIL-STD-202, method 204, test condition D. No discontinuity shall be permitted.

Corona level:

Altitude: 70,000 feet.
250 V rms, minimum.

Insulation resistance: MIL-STD-202, method 302, condition B, 10,000 megohms minimum.

Shock (specified pulse): MIL-STD-202, method 213, test condition I.

Thermal shock: MIL-STD-202, method 107, test condition B (except high temperature to be +85°C).

Corrosion (salt spray): MIL-STD-202, method 101, test condition B.

RF high potential withstanding voltage: 670 V rms, minimum.

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Frequency: 5 to 7 MHz.

Leakage current: Not applicable.

RF leakage: -85 dB, minimum. Tested at a frequency between 2 and 3 GHz.

RF insertion loss: $.04\sqrt{F}$, (F in GHz), dB maximum.

Cable retention: 30 pounds, minimum. 16 inch-ounces, minimum.

Coupling mechanism retention force: Not applicable.

Durability: 500 cycles minimum at 12 cycles per minute maximum. The connector shall meet the mating characteristics and force to engage and disengage requirements.

PIN: See table I.

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-31031, this document references the following:

MIL-DTL-17
MIL-DTL-45204
MIL-STD-202
MIL-STD-348
FED-STD-H28

CONCLUDING MATERIAL

Custodians:

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

Preparing activity:
DLA - CC

(Project 5935-2009-152)

Review activities:

Army - AT, AV, 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.daps.dla.mil/>.