TNC/BNC CONNECTOR GAGE KIT

A012A

A012A TNC/BNC Connector Gage Kit

Key Features

- *Direct Reading*
- *Self-Checking*
- *Accurate*
- *Easy To Use*

Description

The Maury model A012A connector gage kit is designed to measure the contact pin and dielectric location of all commonly used TNC/BNC connectors. Generally the TNC and BNC are the same except the TNC is a screw on connector and the BNC is a bayonet type. To check the interface dimensions, requires three measurements for each connector to ensure the proper location of the contact pin and dielectric. These locations must be maintained within specifications for good electrical performance and to avoid connector damage when mated. **Figure 1** shows the interface dimensions measured with this A012A connector gage kit. Table 1 gives the interface dimensions for earlier TNC/BNC designs. The interface dimensions of the more recent TNC connectors are shown in Table 3.

This gage kit provides a fast and accurate means for checking connectors for compliance to applicable interface specifications. Since it is basically a comparator, it can be used to check a variety of nominal dimensions. The indicator is zeroed by means of a master gage with the appropriate nominal dimension; then, it is engaged to the connector being tested. The resultant reading is the actual deviation from the nominal dimension. The accuracy of the measurement is the tolerance of the master gage nominal dimension itself.

The model A012A consists of a precision dial indicator assembly, interchangeable female and male measurement bushings and a master gage supplied in a wood instrument case with complete operating instructions. All gage parts and the master gage are made from stainless steel for long wearing characteristics.

The model A012A is very useful in a variety of applications such as: production checkout, incoming inspection, quality control and in the laboratory.

Dimensions (Inches)

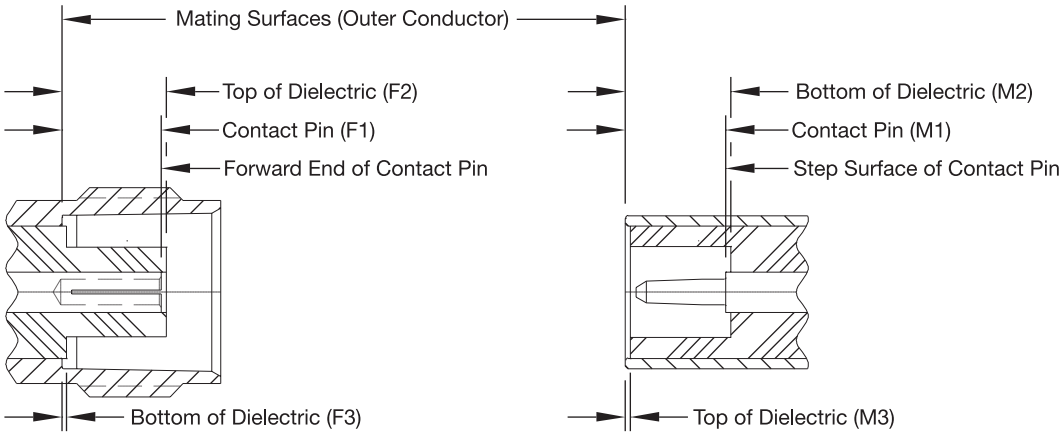

Figure 1

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Connector Gage Specifications

Connectors Measured .... TNC and BNC, female & male

Interface Specifications:

- MIL-C-87104/2 (AFTNC Connectors)
- MIL-STD-384A (TNCA Connectors)
- MIL-T-81490
- IEC 169-17
- IEC 169-26

Dial Indicator .....2-1/4 dia. (0.000100 Graduations)

Master Gage Dimensions.....0.207 female and male

Accuracy of Measurement ..... Refer to Table 2

Case Dimensions (inches).....6.0 L x 4.0 W x 2.0 D

Table 1. BNC and TNC Interface Dimensions

SPECIFICATION	FEMALE CONNECTOR			MALE CONNECTOR		
	F1	F2	F3	M1	M2	M3
MIL-C-39012 (Class 2)	0.206 max	0.208 max	0.006 max	0.210 min	0.208 min	0.006 min
MIL-C-39012 (Standard Test)	0.206 +0.000/–0.003	0.208 +0.000/–0.008	0.000 +0.008/–0.000	0.209 +0.003/–0.000	0.212 +0.006/–0.000	0.008 +0.004/–0.000
MIL-T-81490 (Type 1)[1]	0.208 +0.000/–0.003	0.208 +0.000/–0.003	0.003 +0.003/–0.000	0.209 +0.003/–0.000	0.209 +0.003/–0.000	0.006 +0.003/–0.000
MPC/TNC (ES-2047)[1, 2]	0.208 +0.000/–0.005	0.208 +0.000/–0.008	0.000 +0.000/–0.004	0.209 +0.005/–0.000	0.209 +0.008/–0.000	0.000 +0.004/–0.000

NOTE: Always check the manufacturer's specifications for the connector you are testing. The dimensions vary based on MIL-STD and IEC specifications used.

Table 2. Connector Gage Specifications

CHARACTERISTICS	LIMITS	COMMENTS
Gage Resolution	± 0.000100	1/5 Least dial graduation [3]
Gage Calibration Accuracy [7]	± 0.000750	1 Least dial graduation[4] plus 0.000250 measurement guardband
Gage Repeatability	± 0.000100	1/5 Least dial graduation [4]
Master Accuracy	± 0.000300	0.00060 Range [5]
Total Uncertainty [6, 7]		
RSS	± 0.000820	Root sum of the squares.
Worst Case	± 0.001250	Add resolution, repeatability, gage and master accuracy limits.

1 Applies to TNC only.
2 Refer to Maury Data Sheet 5E-053.
3 Per ASME B89.1.10M-2001, C5.1.2.
4 Per ASME B89.1.10M-2001, Table 2.
5 Per manufacturers specifications.
6 Performance standards are in compliance with ANSI/NCSL Z540-1, MIL-STD-45662A and ISO 10012-1.
7 Applies over the operating range for connector gaging +0.003/–0.009" from master gage zero setting.

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Table 3. TNC Contact and Dielectric Location Chart

PIN or DIELECTRIC	MIL-C-87104/2	MIL-STD-348A [9]	MIL-T-81490	IEC 169-17	IEC 169-26
MALE	**AFTNC** [8]	**TNCA** [10]			
Male Pin	0.2105 ± 0.0015	0.208 Min			
Top of Dielectric	NONE	NONE			
Bottom of Dielectric	0.2105 ± 0.0015	0.208 Min			
FEMALE					
Female Pin	0.2065 ± 0.0015	0.208/0.198			
Top of Dielectric	0.2065 ± 0.0015	0.208/0.198			
Bottom of Dielectric	0.0045 ± 0.0015	0.006 Max			
MALE		**Test Connector**		**G0** [10]	**G0** [10]
Male Pin		0.209 +0.003/–0.000		0.209 +0.003/–0.000	0.208 Min
Tope of Dielectric		0.006 +0.006/–0.000		0.006 +0.006/–0.000	NONE
Bottom of Dielectric		0.212 +0.006/–0.000		0.212 +0.006/–0.000	0.208 Min
FEMALE					
Female Pin		0.208 +0.000/–0.003		0.208 +0.000/–0.003	0.208/0.198
Top of Dielectric		0.208 +0.000/–0.008		0.208 +0.000/–0.008	0.208/0.204
Bottom of Dielectric		0.006 +0.000/–0.006		0.006 +0.000/–0.006	0.006 +0.000/–0.006
MALE		**Commercial**	**Type I**	**G2** [10] **Commercial**	**G1** [10] **Commercial**
Male Pin		0.210/0.230	0.209/0.212	0.210 Min	0.208 Min
Top of Dielectric		0.006 Min	0.006/0.009	0.006 Min	NONE
Bottom of Dielectric		0.208/0.228	0.209/0.212	0.208 Min	0.208 Min
FEMALE					
Female Pin		0.206/0.186	0.208/0.205	0.206/0.179	0.208/0.197
Top of Dielectric		0.208/0.188	0.208/0.205	0.208 Max	0.208/0.198
Bottom of Dielectric		0.006 Max	0.006/0.003	0.006 Max	0.006/0.000

[8] AFTNC is a Maury designation standing for "Air Force TNC". The Maury AFTNC interface is identical to MIL-C-87104/2 except it has a solid outer conductor on the male connector and is rated to 19 GHz.

[9] MIL-C-39012 has been replaced with MIL-STD-348A.

[10] The specifications for some of these connectors list only one dimension.

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