SMP PRECISION CONNECTOR GAGE KIT
A042A

Features

- ***Checks Female Interface***
- ***Checks Multiple Male Configurations***
- ***Long Lasting Durability***
- ***Accurate and Easy to Use***

Description

The Maury A042A precision connector gage is designed to measure the interface dimensions of SMP connectors. It provides a fast and accurate means to check the center contact and dielectric locations required for female SMP connectors and the center contact location required for the male SMP connector.

The gage kit consists of three gage assemblies, two for measuring the female connector pin and dielectric and one for measuring the male pin and a master gage. In addition, the A042A gage kit is provided with a full set of test pins needed for measuring the four commonly used male SMP connectors (full detent, limited detent, smooth bore, and catchers mitt). The test pins make it easier to distinguish between the four connector types and also are provided with holes in their handles to hold jack to jack adapters, making them easier to gage. The four male connector designations refer to four types of outer conductor mating configurations used on male SMP connectors (see **Figure 1** on page 2).

A042A Precision Connector Gage Kit

The gauging parts are made of stainless steel for long lasting durability and superior stability. The A042A has an accuracy of .00075 inch and a dial resolution of .0001 inch (see **Table 1a** below and **Table 1b** on page 2). The gauges are contained in an attractive foam lined wooden instrument case.

The specifications listed in **Table 1a** and **Table 1b** are the performance standards based on factory measurements traceable to the U. S. A. National Institute of Standards and Technology (NIST). To verify that your gage kit is performing to traceable specifications, periodically send the kit to Maury for calibration. The recommended calibration cycle is one year. The actual need may vary depending on usage.

Table 1a. A042A3 (MP)Connector Gage Specifications

CHARACTERISTICS	LIMITS	COMMENTS
Gage Resolution	± 0.000100	1/5 Least dial graduation [1]
Gage Calibration Accuracy [5]	± 0.000750	1 Least dial graduation [2] plus 0.000250 measurement guardband
Gage Repeatability	± 0.000100	1/5 Least dial graduation [2]
Master Accuracy	± 0.000250	0.0005 Range [3]
Total Uncertainty [4, 5]		
RSS	± 0.000803	Root sum of the squares.
Worst Case	± 0.001200	Add resolution, repeatability, gage and master accuracy limits.

[1] Per ASME B89.1.10M-2001, C5.1.2.

[2] Per ASME B89.1.10M-2001, Table 2.

[3] Per manufacturers specifications.

[4] Performance standards are in compliance with ANSI/NCSL Z540-1, MIL-STD-45662A and ISO 10012-1.

[5] Applies over the operating range for connector gaging +0.015/–0.005" from master gage zero setting.

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Table 1b. A042A1 (FP) and A042A2 (FTD) Connector Gage Specifications		
CHARACTERISTICS	LIMITS	COMMENTS
Gage Resolution	± 0.000100	1/5 Least dial graduation [1]
Gage Calibration Accuracy [5]	± 0.000750	1 Least dial graduation [2] plus 0.000250 measurement guardband
Gage Repeatability	± 0.000100	1/5 Least dial graduation [2]
Master Accuracy	± 0.000100	0.0002 Range [3]
Total Uncertainty [4, 5]		
RSS Worst Case	± 0.000770 ± 0.001050	Root sum of the squares. Add resolution, repeatability, gage and master accuracy limits.

[1] Per ASME B89.1.10M-2001, C5.1.2.

[2] Per ASME B89.1.10M-2001, Table 2.

[3] Per manufacturers specifications.

[4] Performance standards are in compliance with ANSI/NCSL Z540-1, MIL-STD-45662A and ISO 10012-1.

[5] Applies over the operating range for connector gaging +0.015/–0.005" from master gage zero setting.

Dimensions (Inches)

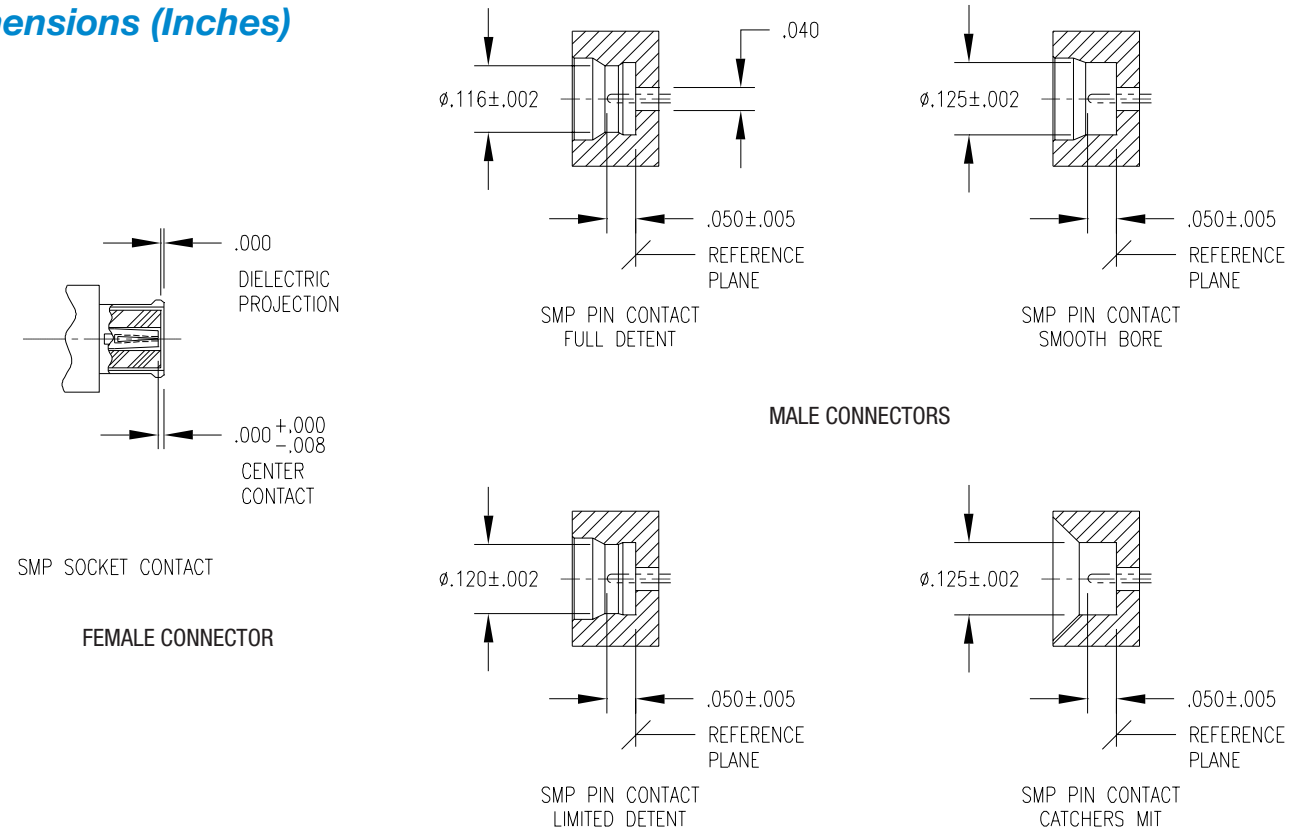

Figure 1. SMP Female and Male Connector Configurations

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Figure 2 shows the complete kit including the A042A5 and A042A6 test pins used to identify the four commonly used SMP connectors (full detent, limited detent, smooth bore and catchers mitt). These four connectors are very similar in their appearance. Using the test pins, the proper connector can readily be identified. This prevents accidental mating with one of the captivating connectors (full detent or limited detent) which are very difficult to disconnect after mating.

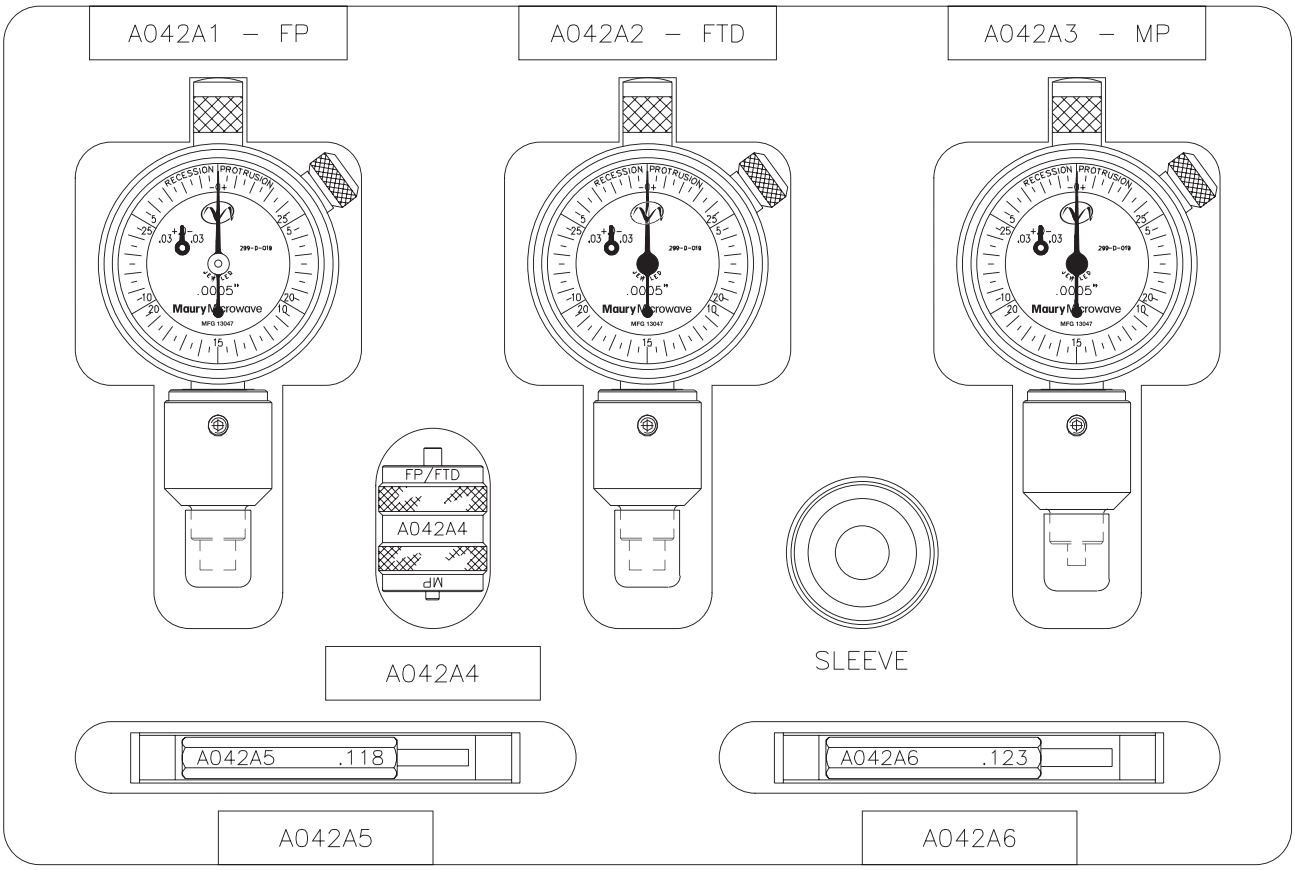

Figure 2. A042A Gage Kit

Summary

The Maury A042A connector gage kit provides a fast and accurate means to check the center contact and dielectric locations of SMP/GPO™ connectors. Poor electrical performance or damage can result if any of these parameters are out of tolerance. In addition, a set of GO NO-GO pins are included to readily identify the four commonly used connectors (full detent, limited detent, smooth bore and catchers mitt). This kit is a must for anyone working with SMP connectors.

Note: GPO™ is a trademark of the Gilbert Engineering Company, Inc.

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