Keysight 85038 and 11906 Series
7-16 Calibration and Adapter Kits

Technical Overview

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Introduction

Modern wireless communication systems require high-performance components offering low VSWR and low intermodulation distortion at high transmit power levels. To meet these needs, 7-16 connectors are becoming increasingly common in base station transmitters, amplifiers, duplexers, and other products. These connectors conform to IEC 169-4, DIN 47223, European standard EN 122190, and British standard BSEN 122190.

To calibrate our network analyzers for measurements of devices with 7-16 connectors, Keysight Technologies, Inc. offers the 85038 family of calibration kits with precision 7-16 standards. The 11906 family of adapter kits is also available to provide connections between 7-16 connectors and type-N, 3.5 mm, or 7 mm connectors. The female 7-16 connectors in these kits feature special retracted threads that do not compress the gasket when connecting to a general-purpose 7-16 connector. This allows the connectors to be properly mated with only 20 in-lbs (1.6 ft-lbs) of torque, instead of the usual 18.5 to 22 ft-lbs of torque, reducing the possibility of damaging the test ports of a network analyzer.

Keysight 85038 Family Calibration Kits

The 85038A calibration kit contains open circuits, short circuits, and terminations with both male and female 7-16 connectors. More economical versions of this kit are available: the 85038M contains only male devices, and the 85038F provides only female devices (see the following table). Each kit contains a floppy disk with the calibration kit definition for use with Keysight 8712, 8714, 8753, 8719, 8720, 8722, and 8510C network analyzers.

Table 1. Contents of 7-16 Calibration Kits

Description	Part Number	85038A	85038M	85038F
Open circuit, female	85038-80002	■		■
Open circuit, male	85038-80003	■	■	
Short circuit, female	85038-80004	■		■
Short circuit, male	85038-80005	■	■	
Termination, female	85038-80006	■		■
Termination, male	85038-80007	■	■	
7-16 adapter, female-to-female	11906-80016			■
7-16 adapter, male-to-male	11906-80015		■	
Calibration kit data disk	85038-10001	■	■	■
Torque wrench	8710-2175	■		
Open-end wrench	8710-2174	■		

Keysight 11906 Family Adapter Kits

The 11906 family consists of four adapter kits:

Contains	Quantity	Part Number
11906A 7-16 to 7-16 adapter kit		
7-16 male-to-male adapter	1	11906-80015
7-16 female-to-female adapter	1	11906-80016
7-16 male-to-female adapter	2	11906-80017
11906B 7-16 to 50-Ohm type-N adapter kit		
Type-N male to 7-16 male adapter	1	11906-80007
Type-N female to 7-16 female adapter	1	11906-80008
Type-N female to 7-16 male adapter	1	11906-80009
Type-N male to 7-16 female adapter	1	11906-80010
11906C 7-16 to 7-mm adapter kit		
7-mm to 7-16 male adapter	2	11906-80012
7-mm to 7-16 female adapter	2	11906-80013
11906D 7-16 to 3.5-mm adapter kit		
3.5-mm male to 7-16 male adapter	1	11906-80002
3.5-mm male to 7-16 female adapter	1	11906-80005
3.5-mm female to 7-16 male adapter	1	11906-80004
3.5-mm female to 7-16 female adapter	1	11906-80003

Specifications

Frequency coverage: dc to 7.5 GHz (usable to 8 GHz)
Nominal impedance: 50 ohms

Calibration Kits

Component	dc to 4 GHz	4 to 7.5 GHz
Open circuits	±1.0° from nominal	±1.25° from nominal
Short circuits	±0.6° from nominal	±0.85° from nominal
Terminations	Return loss >40 db	Return loss >36 dB

Adapters

7-16 to 7-16 adapters: Return loss >38 dB (VSWR <1.025)
7-16 to 50 ohm type-N adapters: Return loss >36 dB (VSWR <1.03)
7-16 to 7-mm adapters: Return loss >36 dB (VSWR <1.03)
7-16 to 3.5-mm adapters: Return loss >34 dB (VSWR <1.04)

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