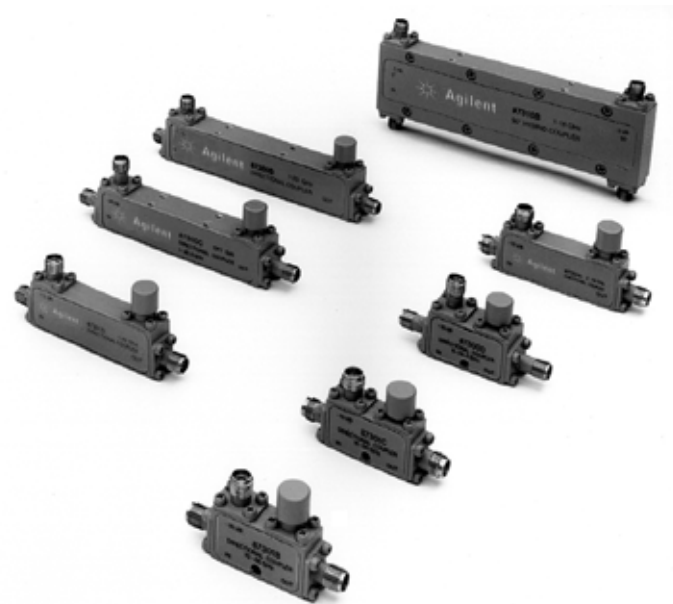




Agilent 87300B,C,D and 87301B,C,D,E Directional Couplers 87310B Hybrid Coupler

Product Overview



Features and Description

- Compact size
- Broadband up to 50 GHz
- Excellent performance

The Agilent Technologies 87300 series of compact, broadband directional/sampling and hybrid couplers are well suited for signal monitoring or, when combined with a coaxial detector, signal leveling. See page 2 for the wide range of product offerings.

Product Applications

These compact, broadband directional couplers are important components for many microwave measurement systems. Although most modern signal generators and sweepers supply signals whose power levels are stable with respect to frequency, variations in signal level are introduced due to the cable losses (which increase with frequency) and the frequency response of other components in the signal path. Inserting a directional coupler into the system with a suitable microwave detector to supply feedback to the ALC circuit of a signal

generator or sweeper provides a leveled signal at a particular point in the system (Figure 1).

Agilent 8474B,C,E detectors offer excellent broad-band frequency response and low SWR for this application. Other applications include power monitoring with an 848X series power sensor connected to the sampling port. Connect the sampled signal port to a microwave counter to monitor frequency or to a signal analyzer for frequency spectrum monitoring (Figure 2).



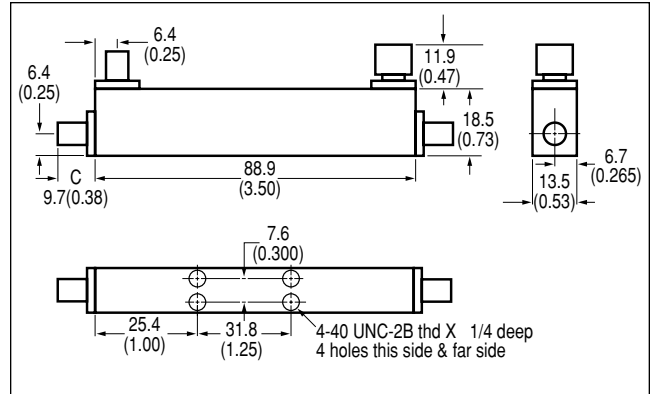
Product Specifications

Model	87300B	87300C	87300D
Frequency range (GHz)	1 to 20 GHz	1 to 26.5 GHz	6 to 26.5 GHz
Nominal coupling and variation with respect to output (or coupling factor over insertion loss)	10 ±0.5 dB	10 ±1 dB	10 ±0.5 dB
Frequency sensitivity	±0.35 dB, 1 to 20 GHz	±0.5 dB, 1 to 26.5 GHz	±0.3 dB
Directivity	>16 dB	>14 dB, 1 to 12.4 GHz >12 dB, 12.4 to 26.5 GHz	>13 dB
Maximum SWR	1.35	1.35, 1 to 12.4 GHz 1.50, 12.4 to 26.5 GHz	1.40
Insertion loss	<1.5 dB	<1.2 dB, 1 to 12.4 GHz <1.7 dB, 12.4 to 26.5 GHz	< 1.3 dB
Typical insertion loss (dB, f = freq. in GHz)	0.6+0.04f	0.6+0.04f	.6 + 0.025f
Power rating			
Average	20 W	20 W	20 W
Peak	3 kW	3 kW	3 kW
Connectors	SMA (f)	3.5 mm (f)	3.5 mm (f)
Weight in grams (oz)	74 (2.6)	60 (2.1)	31.2 (1.1)

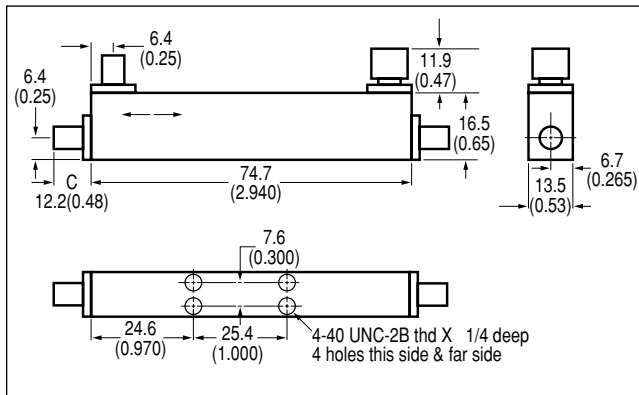
Model	87301B	87301C	87301D	87301E
Frequency range (GHz)	10 to 46 GHz	10 to 50 GHz	1 to 40 GHz	2 to 50 GHz
Nominal coupling and variation with respect to output (or coupling factor over insertion loss)	10 ±0.7 dB	10 ±0.7 dB	13 ±1 dB	10 ±1 dB
Frequency sensitivity	±0.3 dB	±0.5 dB	±1.2 dB, 1 to 40 GHz	±0.6 dB, 2 to 26.5 GHz ±0.8 dB, 2 to 50 GHz
Directivity	>10 dB	>10 dB	>14 dB, 1 to 20 GHz >10 dB, 20 to 40 GHz	>13 dB, 2 to 26.5 GHz >10 dB, 26.5 to 50 GHz
Maximum SWR	1.80	1.80	1.5, 1 to 20 GHz 1.7, 20 to 40 GHz	1.5, 2 to 26.5 GHz 1.8, 26.5 to 50 GHz
Insertion loss	<1.9 dB	<1.9 dB	<1.2 dB, 1 to 20 GHz <1.9 dB, 20 to 40 GHz	<2 dB
Typical insertion loss	.8+0.022f	.8+0.022f	0.4 + 0.035f	0.55 + 0.025f
Power rating				
Average	20 W	20 W	20 W	20 W
Peak	3 kW	3 kW	3 kW	3 kW
Connectors	2.92 mm (f)	2.4 mm (f)	2.4 mm (f) or 2.92 mm (f) for Option 292	2.4 mm (f)
Weight in grams (oz)	28.4 (1)	28.4 (1)	37 (1.3)	34 (1.2)

Agilent 87310B Specifications

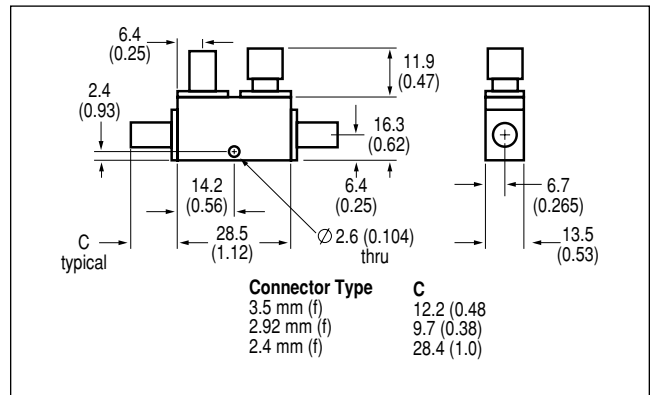
Frequency range	1 to 18 GHz
Coupling	3 dB
Amplitude imbalance	±0.5 dB at each port, centered at -3 dB
Phase imbalance	±10 Degrees
Isolation	>17 dB
Maximum SWR	1.35
Insertion loss	<2 dB
Power rating	
Average	20 W
Peak	3 kW
Connectors	SMA (f)
Weight in grams (oz)	148 (5.2)



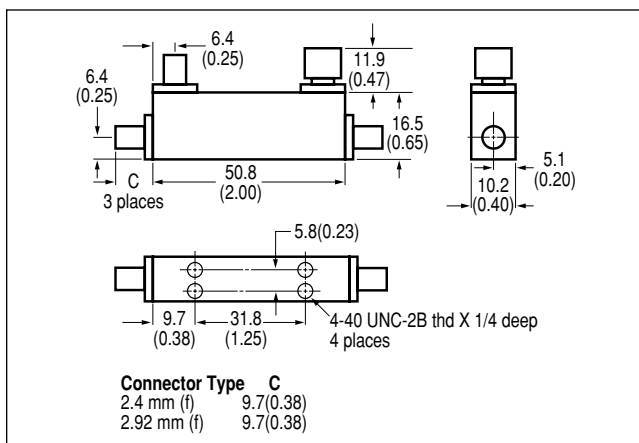
87300B



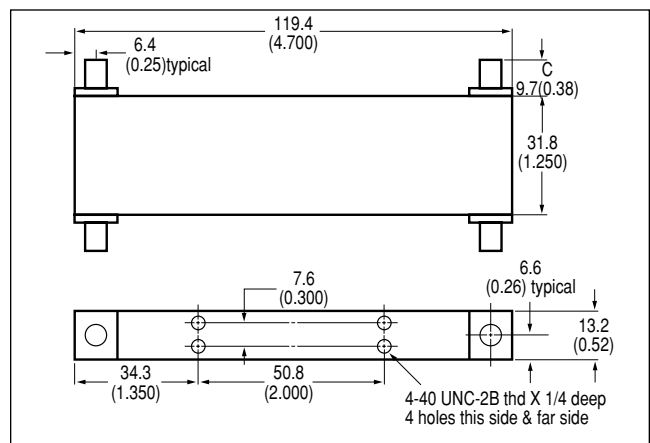
87300C



87300D, 87301B, 87301C



87301 D,E



87300D

Dimensions are in millimeters (inches) nominal unless otherwise specified

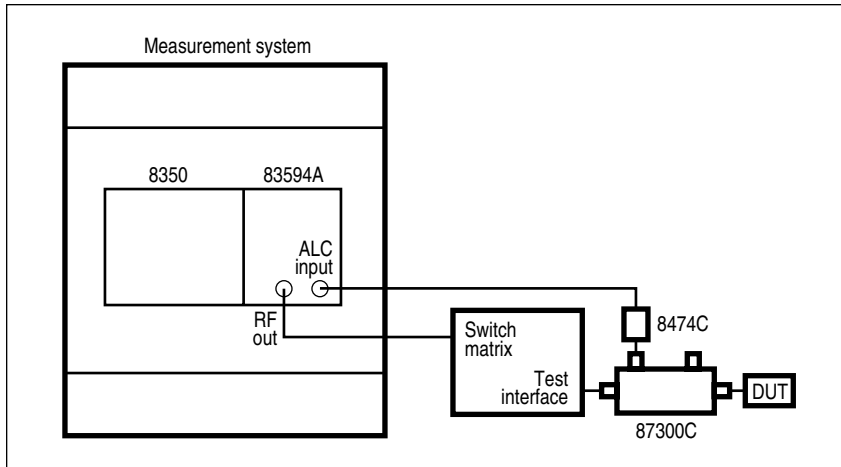


Figure 1

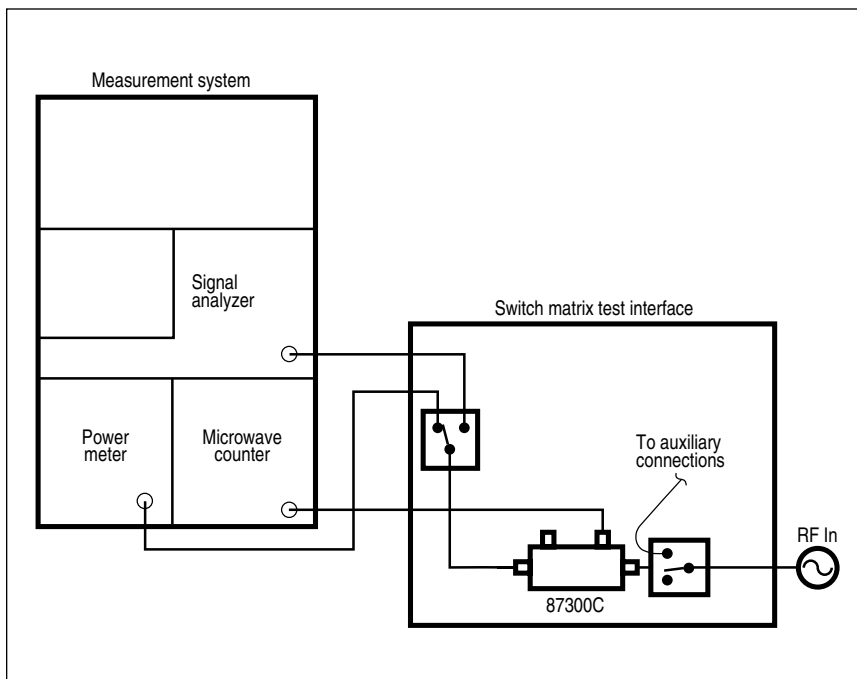


Figure 2

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

"Our Promise" means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

"Your Advantage" means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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