Agilent 11930A/B
Power Limiters

Technical Overview

dc to 6 GHz, 5 MHz to 6 GHz

- high power protection
- exceptional return loss

Increased power protection

The Agilent Technologies 11930A/B limiters provide input protection for a variety of RF and microwave instrumentation. For example, the input circuits of network analyzers may be protected for inputs up to 6 watts peak or 3 watts average power using the 11930A. The 11930B provides the same protection to spectrum analyzers and sources. At even greater power levels, failure mode for the limiter is either an open circuit or a short circuit to ground, thereby protecting the instrument from damage.

Excellent accuracy

The 11930A is furnished with an APC-7 connector and the 11930B has a type-N connector. These limiters offer low insertion loss and linear operation at low input levels while providing protection against transients or short duration overloads. A typical application is shown in Figure 1. Here port 2 of an 8753E network analyzer is protected from inadvertent overload due to high level signals from the amplifier under test. In Figure 2, typical data for output power versus input power is shown for 11930A/B. Figures 3 and 4 illustrate typical insertion loss and return loss.

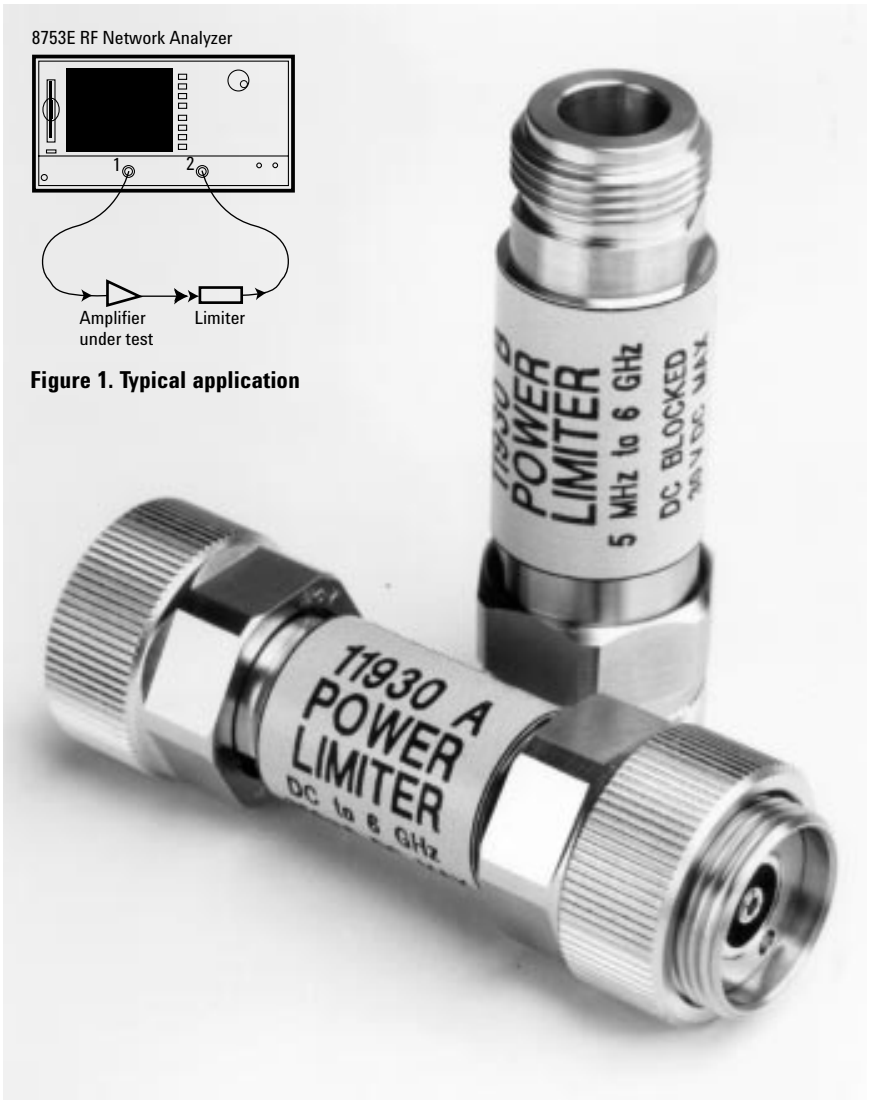


Figure 1. Typical application

Agilent Technologies

Specifications

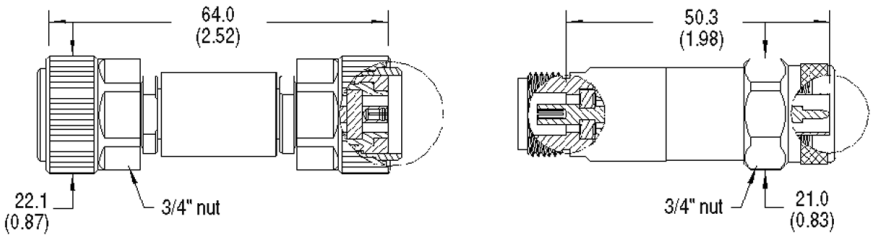
Specifications describe the instrument's warranted performance over the temperature range 0 to 55 °C (except where noted). Supplemental Characteristics are intended to provide information useful in applying the instrument by giving typical but nonwarranted performance parameters. These are denoted as "typical," "nominal," or "approximate."

Power limiters	**11930A**	**11930B**
Frequency range	DC to 6 GHz	5 MHz to 6.5 GHz[1]
Frequency response		
Insertion loss	1.0 dB dc to 3 GHz 1.5 dB 3 to 6 GHz	1.0 dB 16 MHz to 3 GHz[2] 1.5 dB 3 to 6.5 GHz
Return loss	22 dB 0.030 MHz to 3 GHz 20 dB 3 to 6 GHz	21 dB 16 MHz to 3 GHz[2] 17 dB 3 to 6.5 GHz
Impedance	50 Ω nominal	50 Ω nominal
Maximum DC current	350 mA	N/A
Maximum input power levels		
Continuous	3 watts	3 watts
Pulse	6 watts	6 watts
Pulse width	30 ms	30 ms
Duty cycle	10%	10%
Limiting threshold	30 dBm typical	30 dBm typical
Maximum DC volt	30 V	30 V

Mechanical Information

	11930A	**11930B**
Dimensions mm (inches)[3]	64 (2.52)	50.3 (1.98)
Input/output connector	APC-7	Type-N
Net weight kg (lb)	0.40 (0.18)	0.53 (0.24)

Dimensions



11930A 11930B

Note: Dimensions are in millimeters (inches).

1. 6–6.5 GHz typical
2. 5–16 MHz insertion and return loss limited by internal 1500 pfarads blocking cap
3. kength between mating surfaces of outer conductors

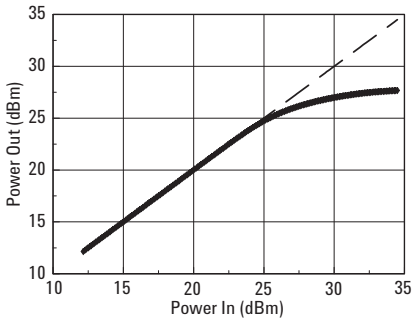


Figure 2. 11930A/B typical output power versus input power

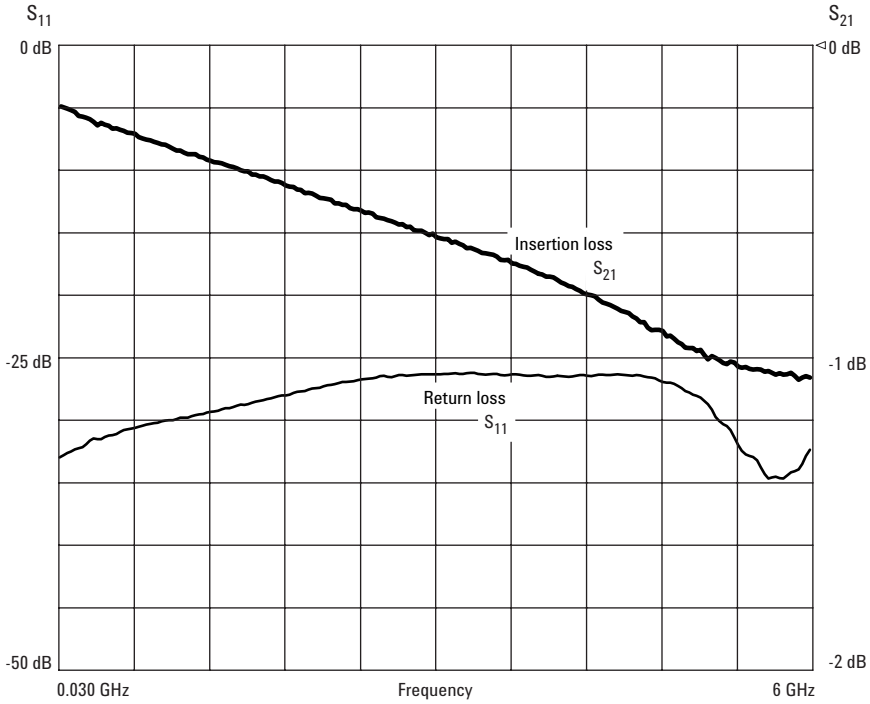


Figure 3. 11930A typical insertion and return loss versus frequency

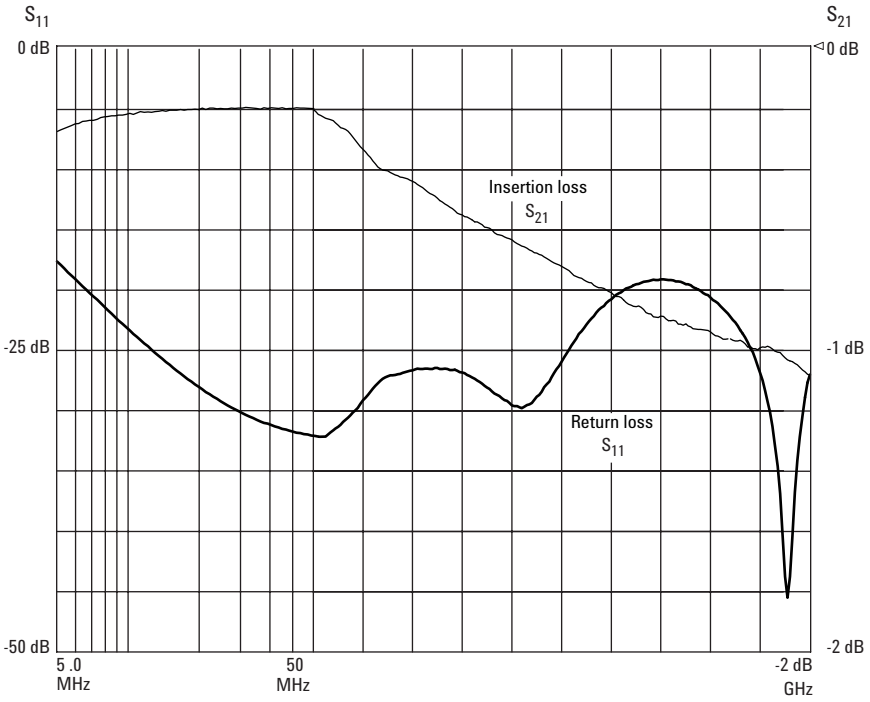


Figure 4. 11930B typical insertion and return loss versus frequency

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 onsite education and training, as well as design, system integration, project management, and other professional engineering 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.

Agilent Email Updates

www.agilent.com/find/emailupdates
Get the latest information on the products and applications you select.

Agilent T&M Software and Connectivity
Agilent's Test and Measurement software and connectivity products, solutions and developer network allows you to take time out of connecting your instruments to your computer with tools based on PC standards, so you can focus on your tasks, not on your connections. Visit
www.agilent.com/find/connectivity
for more information.

By internet, phone, or fax, get assistance with all your test & measurement needs

Phone or Fax

United States:
(tel) 800 452 4844

Canada:
(tel) 877 894 4414
(fax) 905 282 6495

China:
(tel) 800 810 0189
(fax) 800 820 2816

Europe:
(tel) (31 20) 547 2323
(fax) (31 20) 547 2390

Japan:
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

Korea:
(tel) (82 2) 2004 5004
(fax) (82 2) 2004 5115

Latin America:
(tel) (305) 269 7500
(fax) (305) 269 7599

Taiwan:
(tel) 0800 047 866
(fax) 0800 286 331

Other Asia Pacific Countries:
(tel) (65) 6375 8100
(fax) (65) 6836 0252
Email: tm_asia@agilent.com

Online Assistance:
ww.agilent.com/find/assist

Product specifications and descriptions in this document subject to change without notice.

Printed in USA, September 30, 2002
5966-2006E

Agilent Technologies