

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8970B

The Keysight (Agilent / HP) 8970B is a dedicated Noise Figure Meter designed for easy, accurate, and repeatable noise figure and gain measurements of amplifiers and frequency converting devices. It simultaneously measures noise figure (0 to 30 dB) and gain (-20 to >+40 dB), seamlessly integrating with the HP 346 and 347 family of noise sources. Featuring a base tuning range of 10 to 1600 MHz (extendable to 2047 MHz via option), the 8970B supports simple single-stage components as well as complex mixer measurements, providing automatic second-stage correction and automated control of external local oscillators and the 8971C Noise Figure Test Set.

SPECIFICATIONS

General

Interfaces	HP-IB (IEEE-488)
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Physical

Power Supply	100, 120, 220, or 240 V (+5%, -10%), 48 to 66 Hz, 150 VA maximum
Operating Temperature	0 to 55 °C
Dimensions (W×H×D)	425 × 146 × 476 mm
Weight	15.5 kg

Frequency Characteristics

Input Frequency Range	10 to 1600 MHz (Standard); 10 to 2047 MHz (with Option 020)
Displayed Measurement Frequency Range	10 to 99999 MHz
IF Measurement Bandwidth	~4 MHz

Noise Figure Specifications

Measurement Range	0 to 30 dB
Measurement Resolution	0.01 dB

Gain Specifications

Maximum Net External Gain	>65 dB
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Input Characteristics

Input Noise Figure	<7 dB + 0.003 dB/MHz
Input SWR (Standard)	<1.7 (0.26 ρ) at 10 to 1600 MHz
Input SWR (Option 020)	<1.8 (0.286 ρ) at 10 to 1600 MHz; <2.0 (0.33 ρ) at >1600 to 2047 MHz
Maximum Operating Input Power	-10 dBm (wideband)
Damage Level	±20 Vdc, +20 dBm peak (or average) at RF
Input Connector Type	Type-N (female)

Noise Source Drive

Compatible Noise Sources

Agilent / HP 346 or 347 family

Sweep and Measurement Features

Measurement Speed

6 to 9 measurements per second (minimum smoothing)

Sweep Speed

140 ms per frequency point (10 to 1600 MHz, minimum smoothing)

Number of Calibration Points

181 per sweep (maximum)

Interfaces and Connectivity

External Equipment Control

External local oscillators, 8971C noise figure test set

Environmental and Compliance

Audible Noise Level

<5.5 bels at 1 meter

Performance

Noise Figure Instrumentation Uncertainty

± 0.1 dB

Gain Instrumentation Uncertainty

± 0.15 dB

Gain Measurement Range

-20 to +40 dB

Gain Measurement Resolution

0.01 dB

Measurement

Smoothing (Averaging)

Exponential averaging, 1 to 512 readings

Environmental

Storage Temperature

-55 to 75 °C

Operating Humidity

< 95% RH at 40 °C

Frequency

Tuning Resolution

1 MHz

Inputs & Outputs

Input Impedance

50 Ω nominal

Noise Source Drive Voltage

28.0 $\pm$ 0.1 V (pulsed)

Noise Source Drive Connector

BNC (female)

Power

Power Consumption

150 VA maximum

TECHNOLOGY

RF / Microwave

APPLICATIONS

Noise Figure and Gain Measurement

