

KEYSIGHT TECHNOLOGIES (AGILENT HP)

N4002A

The Keysight Technologies (Agilent) N4002A is an SNS Series smart noise source designed to accurately and reliably measure noise figures up to 30 dB on devices operating from 10 MHz to 26.5 GHz. Equipped with an APC 3.5 RF connector, it features integrated electronic storage of Excess Noise Ratio (ENR) calibration data and built-in temperature compensation, streamlining setup and reducing user error when integrated with supported Keysight Noise Figure Analyzers (NFA) and X-Series Signal Analyzers.

SPECIFICATIONS

General

Interfaces	SNS Smart Interface (11-pin multi-pin control port)
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Physical

Power Supply	Powered from host instrument via the SNS smart interface cable
Operating Temperature	0 °C to 55 °C °C
Dimensions (W×H×D)	39 mm × 30 mm × 139 mm mm
Weight	0.15 kg kg

RF & Noise Performance

Frequency Range	10 MHz to 26.5 GHz
Nominal Excess Noise Ratio (ENR)	15 dB
ENR Range	12 to 17 dB
Characteristic Impedance	50 Ω
Maximum SWR (Source On, 10 MHz to 1.5 GHz)	1.22
Maximum SWR (Source On, 1.5 GHz to 3.0 GHz)	1.22
Maximum SWR (Source On, 3.0 GHz to 10.0 GHz)	1.25
Maximum SWR (Source On, 10.0 GHz to 18.0 GHz)	1.35
Maximum SWR (Source On, 18.0 GHz to 26.5 GHz)	1.35
Maximum SWR (Source Off, 10 MHz to 1.5 GHz)	1.22
Maximum SWR (Source Off, 1.5 GHz to 3.0 GHz)	1.22
Maximum SWR (Source Off, 3.0 GHz to 10.0 GHz)	1.25
Maximum SWR (Source Off, 10.0 GHz to 18.0 GHz)	1.35
Maximum SWR (Source Off, 18.0 GHz to 26.5 GHz)	1.35
Maximum Reflection Coefficient Change (On to Off, 10 MHz to 1.5 GHz)	< 0.01
Maximum Reflection Coefficient Change (On to Off, 1.5 GHz to 3.0 GHz)	< 0.01
Maximum Reflection Coefficient Change (On to Off, 3.0 GHz to 10.0 GHz)	< 0.01
Maximum Reflection Coefficient Change (On to Off, 10.0 GHz to 18.0 GHz)	< 0.01
Maximum Reflection Coefficient Change (On to Off, 18.0 GHz to 26.5 GHz)	< 0.01
ENR Uncertainty (10 MHz to 1.5 GHz)	± 0.15 dB
ENR Uncertainty (1.5 GHz to 3.0 GHz)	± 0.15 dB
ENR Uncertainty (3.0 GHz to 8.0 GHz)	± 0.13 dB
ENR Uncertainty (8.0 GHz to 18.0 GHz)	± 0.16 dB
ENR Uncertainty (18.0 GHz to 26.5 GHz)	± 0.22 dB
Maximum Reverse Power	1 W
Maximum DC Voltage at RF Output	20 V

Ports & Interconnects

RF Output Connector Type	APC 3.5 (male)
Control Port Connector Type	11-pin multi-pin connector

Smart Capabilities & Calibration Data

Internal EEPROM Calibration Data Storage	Yes, stores electronic calibration and ENR data
Automatic Calibration Data Download Support	Yes, downloads automatically to compatible noise figure analyzers
Integrated Temperature Sensor Accuracy	±1.0 °C
Temperature Compensation Capability	Yes, tracks and compensates ENR changes with temperature

System Compatibility

Supported Noise Figure Analyzers	Keysight NFA Series (N8972A, N8973A, N8974A, N8975A)
Supported Signal/Spectrum Analyzers	Keysight X-Series Signal Analyzers (PXA, MXA, EXA) with Option N9069A Noise Figure Measurement Application

Electrical

Bias Voltage (On State)	+28 V pulsed
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Physical & Environmental

Storage Temperature Range	-40 °C to 75 °C
Maximum Relative Humidity (Non-condensing)	Up to 95% RH at 40 °C
Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,240 m (50,000 ft)

Service & Accessories

Recommended Calibration Cycle	1 year
Included Accessories	SNS interconnect cable (1.17 m / 46 in)

TECHNOLOGY

Solid-state diode noise source

APPLICATIONS

Noise figure and gain measurements on receivers and components

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