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Data Sheet

August 5, 2026

KEYSIGHT / AGILENT

Keysight (Agilent) N4000A SNS Series Noise Source 10 MHz to 18 GHz

Keysight (Agilent) N4000A SNS Series Noise Source 10 MHz to 18 GHz The Keysight N4000A is an SNS Series smart noise source covering 10 MHz to 18 GHz with nominal ENR about 6 dB (specified ENR range 4.5–6.5 dB). Designed for low noise-figure devices or mismatch-sensitive DUTs (e.g., many GaAs FETs). Electronically stored ENR downloads automatically to compatible NFA / X-Series analyzers; on-board temperature sensing improves accuracy. APC 3.5 (m) standard; Type-N (m) Option 001. Low NF device measurement to ~20 dB NF; mismatch-sensitive amplifier NF; automated Y-factor NF with NFA/X-Series. The Keysight N4000A is an SNS Series smart noise source covering 10 MHz to 18 GHz with nominal ENR about 6 dB (specified ENR range 4.5–6.5 dB). Designed for low noise-figure devices or mismatch-sensitive DUTs (e.g., many GaAs FETs). Electronically stored ENR downloads automatically to compatible NFA / X-Series analyzers; on-board temperature sensing improves accuracy. APC 3.5 (m) standard; Type-N (m) Option 001. Low NF device measurement to ~20 dB NF; mismatch-sensitive amplifier NF; automated Y-factor NF with NFA/X-Series.



MODEL

**Keysight / Agilent
N4000A**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

N4000A

LISTING

<https://aumictechlabs.com/products/n4000a-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Keysight N4000A SNS Series Noise Source generates stable, repeatable noise signals across 10 MHz to 18 GHz for precision noise figure measurements. Engineered to maintain consistent impedance whether powered on or off, it eliminates gain fluctuations in the device under test that could be misattributed to noise - critical for characterizing low-noise devices and gain-sensitive components like GaAs FETs. The instrument delivers a nominal excess noise ratio of 6 dB with calibration data electronically stored and automatically downloaded to compatible analyzers, reducing user error and ensuring traceability.

Technical Specifications

- Frequency Range: 10 MHz to 18 GHz
- Excess Noise Ratio (ENR): 6 dB nominal; 4.5 to 6.5 dB range
- Noise Figure Measurement Capability: DUTs up to 20 dB
- Impedance Consistency: Reflection coefficient change between ON and OFF states < 0.01; reflection coefficient magnitude < 0.01 maintains uncertainty below 0.1 dB
- Standard Connector: APC-3.5 (male); Type-N (male) optional
- Weight: 1.5 kg
- Operating Temperature: 23°C ± 5°C (reference 23°C / 296 K)
- Warm-up Time Required: 60 minutes (analyzer specification)

Key Features

- Electronic storage of ENR calibration data with full traceability
- Automatic temperature measurement via internal thermometer
- Temperature compensation applied to calibration data for improved accuracy
- Automatic data download to compatible noise figure analyzers
- Electronically stored ENR uncertainty and reflection coefficient data at each frequency point
- Impedance stability minimizes gain variations in low-noise and impedance-sensitive DUTs

Typical Applications

- Noise figure measurement of low-noise amplifiers
- Characterization of GaAs FET devices and other gain-sensitive components
- System-level noise performance validation
- Automated noise figure measurements with integrated analyzer systems

Compatibility & Integration

The N4000A integrates with Keysight NFA Series noise figure analyzers and Keysight ESA E-Series and X-Series signal analyzers for automated measurement and data transfer.

Features & description

From manufacturer datasheet

Features

- Frequency: 10 MHz to 18 GHz
- ENR: nominal 6 dB; range 4.5–6.5 dB
- Auto ENR download to NFA / X-Series
- Temperature sensing for compensation
- Complex reflection coefficient change ON/OFF < 0.01
- Connectors: APC 3.5 (m) standard; Type-N (m) Option 001
- Compatible SNS cable (11730A class) required

N4000A Characteristics / Specifications

PARAMETER	VALUE
Model	N4000A
Manufacturer	Keysight Technologies (Agilent)
Instrument Type	SNS Series Smart Noise Source
Family	SNS Series (N4000A / N4001A / N4002A)
Alias	N4000A; Agilent N4000A RF
Frequency Range	10 MHz to 18 GHz
ENR Range	4.5 to 6.5 dB (nominal ~6 dB)
Suitable DUT NF	up to about 20 dB SWR / Reflection (max standing wave ratio) 0.01–1.5 GHz: < 1.04:1 (p 0.03) 1.5–3.0 GHz: < 1.04:1 (p 0.03) 7.0–18.0 GHz: < 1.22:1 (p 0.10) (Intermediate bands per SNS Technical Overview table)
Maximum change in complex reflection coefficient ON/OFF	0.01 ENR Uncertainty (characteristic, Option A1R class) 0.01–1.5 GHz: ±0.16 dB 1.5–3.0 GHz: ±0.15 dB 3.0–7.0 GHz: ±0.15 dB 7.0–18.0 GHz: ±0.16 dB Temperature Sensing (supplemental)
Range	0 to 55 °C; Resolution: 0.25 °C; Accuracy: ±1° at 25 °C; ±2° over 0–55 °C
ENR variation with temperature	< 0.01 dB/°C (30 MHz–26.5 GHz family note) Operational Notes N4001A is 15 dB ENR general-purpose sibling; N4002A extends to 26.5 GHz. Prefer Keysight SNS Technical Overview 5988-0081EN.
Frequency	10 MHz to 18 GHz
ENR	nominal 6 dB; range 4.5–6.5 dB
Connectors	APC 3.5 (m) standard; Type-N (m) Option 001

N4000A Specifications

PARAMETER	VALUE
Applications	Low NF device measurement to ~20 dB NF; mismatch-sensitive amplifier NF; automated Y-factor NF with NFA/X-Series.
Key Features	- Frequency: 10 MHz to 18 GHz
Technical Specifications	Model: N4000A
SWR / Reflection (max standing wave ratio)	0.01–1.5 GHz: < 1.04:1 (ρ 0.03)
Temperature Sensing (supplemental)	Range: 0 to 55 °C; Resolution: 0.25 °C; Accuracy: ±1° at 25 °C; ±2° over 0–55 °C
Operational Notes	N4001A is 15 dB ENR general-purpose sibling; N4002A extends to 26.5 GHz. Prefer Keysight SNS Technical Overview 5988-0081EN.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications

Specifications

PARAMETER	VALUE
Model	N4000A
Manufacturer	Keysight Technologies (Agilent)
Instrument Type	SNS Series Smart Noise Source
Family	SNS Series (N4000A / N4001A / N4002A)
Alias	N4000A; Agilent N4000A

RF

Specifications

PARAMETER	VALUE
Frequency Range	10 MHz to 18 GHz
ENR Range	4.5 to 6.5 dB (nominal ~6 dB)
Suitable DUT NF	up to about 20 dB

SWR / Reflection (max standing wave ratio)

0.01–1.5 GHz: < 1.04:1 (ρ 0.03)

1.5–3.0 GHz: < 1.04:1 (ρ 0.03)

7.0–18.0 GHz: < 1.22:1 (ρ 0.10)

(Intermediate bands per SNS Technical Overview table)

Maximum change in complex reflection coefficient ON/OFF: 0.01

ENR Uncertainty (characteristic, Option A1R class)

0.01–1.5 GHz: ±0.16 dB

1.5–3.0 GHz: ±0.15 dB

3.0–7.0 GHz: ±0.15 dB

7.0–18.0 GHz: ±0.16 dB

Temperature Sensing (supplemental)

Range: 0 to 55 °C; Resolution: 0.25 °C; Accuracy: ±1° at 25 °C; ±2° over 0–55 °C

ENR variation with temperature: < 0.01 dB/°C (30 MHz–26.5 GHz family note)

Operational Notes

N4001A is 15 dB ENR general-purpose sibling; N4002A extends to 26.5 GHz. Prefer Keysight SNS Technical Overview 5988-0081EN.

Ordering Information

OPTION	DESCRIPTION
Option 001	Compatible SNS cable (11730A class) required

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.