

KEYSIGHT TECHNOLOGIES (AGILENT HP)

N5225B

The Keysight N5225B is a high-performance PNA Series microwave vector network analyzer designed for passive and active device test applications up to 50 GHz. It offers industry-leading performance in dynamic range, trace noise, and speed, making it suitable for microwave component characterization, mixer measurements, and advanced RF test configurations. Available in 2-port or 4-port options, the N5225B features a modern Windows 10 operating system and an intuitive touch-screen interface.

SPECIFICATIONS

General

Interfaces	GPIB, LAN (10/100/1000Base-T), USB 2.0 (4 front, 4 rear), USB 3.0 (2 rear), DisplayPort, VGA, Test Set Control
Display	12.1-inch WXGA color touchscreen (1280 x 800)

Physical

Power Supply	100 to 240 VAC ($\pm 10\%$), 50 to 60 Hz, 350 W max (2-port) / 450 W max (4-port)
Operating Temperature	0 to 40 °C °C
Dimensions (W×H×D)	267 mm H x 461 mm W x 501 mm D (2-port) / 267 mm H x 461 mm W x 580 mm D (4-port) mm
Weight	36 kg (2-port) / 41 kg (4-port) kg

Frequency and Power Specifications

Frequency Range	10 MHz to 50 GHz
Frequency Resolution	1 Hz
Frequency Accuracy	± 1 ppm (standard), ± 0.05 ppm (with Option 1E5)
Frequency Temperature Stability	± 0.05 ppm (-10 °C to 70 °C, with Option 1E5)
Maximum Output Power (at 50 GHz)	+4 dBm
Power Resolution	0.01 dB
Power Sweep Range (at 50 GHz)	14 dB (standard), 24 dB (typical)

Receiver Performance

System Dynamic Range (at 50 GHz, 10 Hz IFBW)	114 dB (122 dB typical)
Trace Noise Magnitude (at 50 GHz, 10 kHz IFBW)	0.006 dB rms
Trace Noise Phase (at 50 GHz, 10 kHz IFBW)	0.038 degrees rms
IF Bandwidth Range	1 Hz to 15 MHz
Damage Input Level	+27 dBm (CW), ± 40 VDC
Maximum DC Input Voltage	40 VDC

Test Port Characteristics

Number of Ports	2 or 4 (configuration dependent)
Connector Type	2.4 mm male
Impedance	50 ohms (nominal)

Measurement and Sweep Capabilities

Sweep Types	Linear frequency, log frequency, power sweep, segment sweep, CW time
Max Number of Points	100,003
Supported S-Parameters	S11, S12, S21, S22 (2-port), up to S44 (4-port)
Calibration Types Supported	SOLT, TRL, TRM, LRL, LRM, Unknown Thru, ECal
Time Domain Analysis Capability	Supported (Option 010)
Frequency Offset Mode	Supported (Option 080)
Mixer/Converter Measurement Capability	Supported (Option 082/083)
Gain Compression Application Support	Supported (S93015B)
Noise Figure Measurement Support	Supported (S93029B)
Pulsed-RF Measurement Support	Supported (S93025B)

Hardware Configuration and Options

Source Attenuators	0 to 60 dB in 10 dB steps (Option dependent)
Receiver Attenuators	0 to 35 dB in 5 dB steps (Option dependent)
Internal Bias Tees	Option dependent
Second Internal Source	Available on 4-port configurations (Option 423/425)

System, Controller and Storage

Operating System	Windows 10
Internal Processor	Intel Core i7
System Memory	16 GB
Internal Storage Type & Capacity	Solid State Drive (SSD), ≥ 240 GB
Touchscreen Support	Yes (multitouch)

Environmental and Safety Compliance

Storage Temperature Range	-40 to +70 °C
Operating Altitude Limit	3,000 meters (10,000 feet)
Warm-up Time	90 minutes
EMC Certifications	ICES/NMB-001, EN 61326-1, AS/NZS CISPR 11
Safety Standards Met	CAN/CSA C22.2 No. 61010-1, UL 61010-1, EN 61010-1

Physical and Power Specifications

Rack Unit Height	6U
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Connectivity and I/O Interfaces

LXI Compliance	Class C compliant
GP-IB Address Range	0 to 30
Reference Clock Input (10 MHz)	Supported (BNC female, -15 to +20 dBm)
Reference Clock Output (10 MHz)	Supported (BNC female, 0 dBm $\pm$ 4 dB)

Performance

Receiver Noise Floor (45 to 50 GHz)	-108 dBm (10 Hz IFBW, standard)
Receiver Noise Floor (10 to 20 GHz)	-124 dBm (10 Hz IFBW, standard)
Receiver Noise Floor (20 to 26.5 GHz)	-122 dBm (10 Hz IFBW, standard)
Receiver Noise Floor (26.5 to 32 GHz)	-116 dBm (10 Hz IFBW, standard)
Receiver Noise Floor (32 to 40 GHz)	-117 dBm (10 Hz IFBW, standard)
Receiver Noise Floor (40 to 45 GHz)	-111 dBm (10 Hz IFBW, standard)
Receiver 0.1 dB Compression Level (45 to 50 GHz)	+2 dBm
Receiver 0.1 dB Compression Level (10 to 20 GHz)	+6 dBm
Receiver 0.1 dB Compression Level (20 to 40 GHz)	+5 dBm
Phase Noise (10 GHz carrier, 10 kHz offset)	-114 dBc/Hz (typical)
Phase Noise (50 GHz carrier, 10 kHz offset)	-100 dBc/Hz (typical)
Phase Noise (20 GHz carrier, 10 kHz offset)	-108 dBc/Hz (typical)
Phase Noise (40 GHz carrier, 10 kHz offset)	-102 dBc/Hz (typical)
Max Bias Tee Current	200 mA (per port)
Max Bias Tee Voltage	40 VDC
Source Attenuator Range	0 to 60 dB in 10 dB steps (option dependent)
Receiver Attenuator Range	0 to 35 dB in 5 dB steps (option dependent)
System Dynamic Range (10 MHz to 50 MHz)	82 dB (10 Hz IFBW)
System Dynamic Range (50 MHz to 2 GHz)	110 dB (10 Hz IFBW)

Dynamic Range

System Dynamic Range (40 to 45 GHz, 10 Hz IFBW)	114 dB (Standard, Option 200)
System Dynamic Range (32 to 40 GHz, 10 Hz IFBW)	122 dB (Standard, Option 200)
System Dynamic Range (26.5 to 32 GHz, 10 Hz IFBW)	121 dB (Standard, Option 200)
System Dynamic Range (20 to 26.5 GHz, 10 Hz IFBW)	127 dB (Standard, Option 200)
System Dynamic Range (2 to 10 GHz, 10 Hz IFBW)	127 dB (Standard, Option 200)

Inputs & Outputs

LAN Port	10/100/1000Base-T (RJ-45)
USB Ports (Rear)	4 x USB 2.0, 2 x USB 3.0, 1 x USB Device Type-B
USB Ports (Front)	3 x USB 2.0, 1 x USB 3.0
DisplayPort Output	Present (2 x DisplayPort)
VGA Output	Present (1 x VGA)
External Trigger Input Connector	BNC female
External Trigger Output Connector	BNC female
Pulse I/O Port	15-pin D-sub female
Test Set I/O Port	25-pin D-sub female
Bias Tee Inputs	BNC female (option dependent)

User Interface

Display Resolution	1280 x 800 pixels
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Power

Maximum Power Consumption (2-Port)	400 W
Maximum Power Consumption (4-Port)	650 W

Connectivity

Handler Port Connector	36-pin D-sub, female
Auxiliary I/O Port Connector	25-pin D-sub, female

Configurations & Options

Option 200 Configuration	2-port, single source, standard test set
Option 219 Configuration	2-port, single source, configurable test set, source and receiver attenuators, bias tees
Option 400 Configuration	4-port, dual source, standard test set
Option 419 Configuration	4-port, dual source, configurable test set, source and receiver attenuators, bias tees

TECHNOLOGY

Vector Network Analyzer

APPLICATIONS

Microwave component characterization, S-parameter measurement, mixer and converter testing, signal integrity analysis

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.