

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E9304A

The Keysight Technologies (Agilent) E9304A is an E-series average power sensor designed for highly accurate and repeatable power measurements across a wide dynamic range. Covering a frequency range from 9 kHz to 6 GHz (or up to 18 GHz with Special Option H18), this diode-attenuator-diode topology sensor is ideal for very low frequency (VLF) applications, EMC/EMI testing, and general average power measurements of all modulation formats.

SPECIFICATIONS

General

Interfaces	Proprietary system interface connector to compatible power meter
Display	None (uses host power meter display)
Calibration Cycle	1 year (recommended)

Physical

Power Supply	Powered by compatible power meter
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	38 mm x 30 mm x 135 mm mm
Weight	0.18 kg kg

Measurement Performance

Frequency Range (Standard)	9 kHz to 6 GHz
Frequency Range (with Option H18)	9 kHz to 18 GHz
Power Measurement Range	-60 to +20 dBm
Dynamic Range	80 dB
Maximum Average Power Damage Level	+25 dBm
Maximum Peak Power Damage Level	+33 dBm (< 10 microseconds duration)
Measurement Speed	Up to 200 readings per second
Low Power Path Range	-60 to -10 dBm
High Power Path Range	-10 to +20 dBm
SWR (9 kHz to 2 GHz)	1.15
SWR (2 GHz to 6 GHz)	1.25
Modulation Support	Average power of all modulation formats (bandwidth independent)
Sensor Topology	Patented diode-attenuator-diode

Calibration and Accuracy

EEPROM Storage	Stored calibration factors, linearity, and temperature compensation data
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Physical and Mechanical

RF Input Connector Type	Type-N (m)
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System Compatibility

Compatible Power Meter Models	EPM (E4418, E4419), EPM-P (E4416A, E4417A), and P-series (N1911A, N1912A)
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Ordering and Configuration Options

Special Options	Option H18 (Extends frequency range to 18 GHz)
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Accuracy & Performance

Power Linearity (25 °C ± 10 °C, -60 to -10 dBm)	±1.5%
Power Linearity (25 °C ± 10 °C, -10 to 0 dBm)	±1.5%
Power Linearity (25 °C ± 10 °C, 0 to +20 dBm)	±1.5%
Power Linearity (0 °C to 55 °C, -60 to -10 dBm)	±2.5%
Power Linearity (0 °C to 55 °C, -10 to 0 dBm)	±2.5%
Power Linearity (0 °C to 55 °C, 0 to +20 dBm)	±2.5%
Zero Set (Low Power Path)	±1.5 nW
Zero Set (High Power Path)	±150 nW
Zero Drift (Low Power Path)	< ±150 pW
Zero Drift (High Power Path)	< ±15 nW

Calibration Uncertainty

Calibration Factor Uncertainty (9 to 100 kHz)	±1.6% (25 °C ± 10 °C)
Calibration Factor Uncertainty (100 kHz to 2 GHz)	±1.5% (25 °C ± 10 °C)
Calibration Factor Uncertainty (2 to 6 GHz)	±1.7% (25 °C ± 10 °C)

Environmental & Compliance

Storage Temperature Range	-55 °C to +75 °C
Operating Altitude	Up to 4600 m (15000 ft)
Non-Operating Altitude	Up to 15240 m (50000 ft)
Operating Humidity	Up to 95% RH at 40 °C (non-condensing)
Storage Humidity	Up to 90% RH at 65 °C (non-condensing)

Electrical Specifications

Nominal Impedance	50 Ω
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Performance

Measurement Noise (Low Power Path)	< 1.1 nW
Measurement Noise (High Power Path)	< 110 μW

Connectivity

Compatible Sensor Cables	Keysight E9288A, E9288B, E9288C
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Compliance & Safety

EMC Compliance	IEC 61326-1 / EN 61326-1, CISPR 11 / EN 55011 Group 1 Class A
Safety Compliance	IEC 61010-1 / EN 61010-1

TECHNOLOGY

Diode-attenuator-diode power sensor

APPLICATIONS

Average RF/microwave power measurement, EMC/EMI immunity testing, VLF measurements

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