

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E9301B

The Keysight (Agilent) E9301B is an E-Series average power sensor designed for measuring average power across a wide dynamic range from -30 to +44 dBm over a frequency range of 10 MHz to 6 GHz. Utilizing a patented diode-attenuator-diode topology, the E9301B ensures accurate and repeatable average power measurements regardless of modulation format, making it ideal for wireless communication applications.

SPECIFICATIONS

Physical

Power Supply	Powered by compatible power meter via sensor cable
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	52 mm × 50 mm × 214 mm mm
Weight	0.275 kg kg

Measurement Ranges & Power Specifications

Frequency Range Minimum	10 MHz
Frequency Range Maximum	6 GHz
Power Measurement Range Minimum	-30 dBm
Power Measurement Range Maximum	+44 dBm
Dynamic Range	74 dB

Sensor Technology & Architecture

Sensor Detection Type	Diode-attenuator-diode
Measurement Modes Supported	Average power
Modulation Independence	Bandwidth independent, measures average power of all modulation formats

RF Port Characteristics

Input Impedance	50 Ω
RF Connector Type	Type-N
Connector Sex	Male
Maximum SWR	1.15

Accuracy, Calibration & Noise

Calibration Factor Storage Type	Internal EEPROM
Stored Calibration Data	Calibration factors, linearity, and temperature compensation

Meter Compatibility & System Integration

Compatible Power Meter Models	Keysight/Agilent EPM (including E4418, E4419), EPM-P, and P-series
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Power Handling

Maximum Continuous Input Power	+45 dBm (at 0 to 35 °C), +43 dBm (at 35 to 55 °C)
Maximum Peak Input Power	100 W (for < 10 µs at 0 to 35 °C), 60 W (for < 10 µs at 35 to 55 °C)

Environmental

Storage Temperature Range	-40 °C to +75 °C
Operating Humidity	Up to 95% RH at 40 °C (non-condensing)
Storage Humidity	Up to 90% RH at 65 °C (non-condensing)
Operating Altitude	Up to 4600 m (15,000 ft)

Accessories

Compatible Cables	E9288A, E9288B, E9288C
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RF Characteristics

Integrated Attenuator	30 dB
Calibration Factor Uncertainty (10 MHz to 30 MHz)	1.6% (at 25 °C ± 5 °C) / 2.4% (0 to 55 °C)
Calibration Factor Uncertainty (30 MHz to 2 GHz)	1.4% (at 25 °C ± 5 °C) / 2.0% (0 to 55 °C)
Calibration Factor Uncertainty (2 GHz to 6 GHz)	1.7% (at 25 °C ± 5 °C) / 2.3% (0 to 55 °C)

Linearity

Power Linearity (-30 to -10 dBm)	±3.0% (at 25 °C ± 5 °C) / ±3.5% (0 to 55 °C)
Power Linearity (-10 to 0 dBm)	±2.5% (at 25 °C ± 5 °C) / ±3.0% (0 to 55 °C)
Power Linearity (0 to +10 dBm)	±2.0% (at 25 °C ± 5 °C) / ±2.5% (0 to 55 °C)
Power Linearity (+10 to +30 dBm)	±2.0% (at 25 °C ± 5 °C) / ±2.5% (0 to 55 °C)
Power Linearity (+30 to +44 dBm)	±2.5% (at 25 °C ± 5 °C) / ±3.0% (0 to 55 °C)

Measurement Performance

Zero Set (Range 1)	500 nW
Zero Set (Range 2)	1.5 µW
Measurement Noise (Range 1)	700 nW (with 128 averages)
Measurement Noise (Range 2)	2.1 µW (with 128 averages)
Zero Drift (Range 1)	150 nW (over 1 hour at constant temperature)
Zero Drift (Range 2)	150 µW

TECHNOLOGY

Diode-Attenuator-Diode

APPLICATIONS

RF and Microwave Average Power Measurement

