

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E4412A

The Keysight Technologies (formerly Agilent HP) E4412A is a high-performance CW diode power sensor designed for measuring average power across a wide frequency range of 10 MHz to 18 GHz. It offers a 90 dB dynamic range (-70 dBm to +20 dBm) with exceptional SWR characteristics, minimizing mismatch uncertainties and ensuring precise RF power measurements when used with compatible power meters.

SPECIFICATIONS

General

Interfaces	Proprietary multi-pin connector (uses 11730A series sensor cables)
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Physical

Power Supply	Powered directly from the host power meter
Operating Temperature	0 to 55 °C °C

Frequency and Power Range Specifications

Frequency Range	10 MHz to 18 GHz
Power Measurement Range	-70 dBm to +20 dBm (100 pW to 100 mW)
Dynamic Range	90 dB

Impedance and VSWR (Standing Wave Ratio)

Nominal Input Impedance	50 Ω
Input Connector Type	Type-N (male)
Maximum SWR (10 MHz to <30 MHz)	1.22
Maximum SWR (30 MHz to <2 GHz)	1.15
Maximum SWR (2 GHz to <6 GHz)	1.17
Maximum SWR (6 GHz to <11 GHz)	1.20
Maximum SWR (11 GHz to <18 GHz)	1.27

Measurement Accuracy and Linearity

Zero Set	± 50 pW
Zero Drift	< ± 15 pW (over 1 hour at constant temperature)
Measurement Noise	< 115 pW

Compatibility and System Interface

Calibration Factor Data Storage	Onboard EEPROM
Compatible Power Meter Models	Keysight EPM (E4418A/B, E4419A/B), EPM-P (E4416A, E4417A), and P-series (N1911A, N1912A) power meters
Maximum Measurement Speed	Up to 400 readings per second (with E4416A)

Sensor Characteristics

EEPROM Calibration Data	Calibration factors stored in internal EEPROM
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Calibration Factor Uncertainty

Calibration Factor Uncertainty (6 GHz to 11 GHz)	±2.5% (at 25 °C ± 5 °C)
Calibration Factor Uncertainty (11 GHz to 18 GHz)	±3.0% (at 25 °C ± 5 °C)
Calibration Factor Uncertainty (10 MHz to 2 GHz, 0 to 55 °C)	±2.1%
Calibration Factor Uncertainty (2 GHz to 6 GHz, 0 to 55 °C)	±2.5%
Calibration Factor Uncertainty (6 GHz to 11 GHz, 0 to 55 °C)	±2.8%
Calibration Factor Uncertainty (11 GHz to 18 GHz, 0 to 55 °C)	±3.4%

Maintenance

Recommended Calibration Cycle	1 year
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TECHNOLOGY

Diode Power Sensor

APPLICATIONS

RF and Microwave Power Measurement

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