

KEYSIGHT TECHNOLOGIES (AGILENT HP)

U2001B

The Keysight U2001B is a high-power USB average power sensor operating over a frequency range of 10 MHz to 6 GHz. Featuring a wide dynamic range from -30 dBm to +44 dBm, it integrates a built-in attenuator to handle high-power signals directly without needing external components. The sensor is ideal for manufacturing, field maintenance, and R&D testing of RF and microwave systems.

SPECIFICATIONS

General

Interfaces	USB 2.0 (via specialized 5-pin or 8-pin to USB-A cable), External Trigger Input/Output (via optional trigger split cable)
Display	None (uses host PC or compatible Keysight instrument screen)
Warm-up Time	30 minutes
Sensor Technology	Diode power sensor with integrated attenuator

Physical

Power Supply	USB Bus Powered, 5.0 VDC nominal (4.5 V to 5.5 V), < 200 mA typical during measurement
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	46.0 mm × 46.0 mm × 194.0 mm mm
Weight	0.76 kg

Measurement Performance Specifications

Frequency Range	10 MHz to 6 GHz
Power Measurement Range	-30 dBm to +44 dBm (1 µW to 25 W)
Standing Wave Ratio (SWR) 10 MHz to 2 GHz	≤ 1.12
Standing Wave Ratio (SWR) 2 GHz to 6 GHz	≤ 1.22
Power Linearity (-30 to +44 dBm)	±3.0% (at 25 °C ± 10 °C)
Measurement Speed (Normal Mode)	110 readings/s
Measurement Speed (Double Buffered/Fast Mode)	1000 readings/s

Damage and Input Tolerances

Maximum Continuous Power (Average)	+45 dBm (31.6 W)
Maximum Peak Power	+47 dBm (50 W) for < 10 µs
Maximum DC Input Voltage	20 VDC

Connectivity and Interfaces

RF Input Connector Type	Type-N (male)
RF Input Impedance	50 Ω
Command Language	SCPI (Standard Commands for Programmable Instruments)
Trigger Input Voltage Levels (TTL)	Logic High: > 2.0 V, Logic Low: < 0.8 V
Trigger Output Voltage Levels (TTL)	Logic High: > 2.4 V, Logic Low: < 0.4 V

Calibration and Correction Features

Internal Calibration Support	Supported (Internal zeroing and calibration wizard)
Calibration Factor Table Storage	Stored in EEPROM
Recommended Calibration Cycle	1 Year

Software and System Integration

Compatible Measurement Software	Keysight BenchVue (BV0007B Power Meter App), N1918A Power Analysis Manager
Driver Support	IVI-C, IVI-COM, LabVIEW

Environmental Specifications

Storage Temperature Range	-40 to +70 °C
Operating Humidity Range	Up to 95% RH at 40 °C (non-condensing)
Storage Humidity Range	Up to 90% RH at 65 °C (non-condensing)
Operating Altitude Limit	4600 m (15000 ft)
Storage Altitude Limit	15240 m (50000 ft)
Vibration and Shock Compliance	MIL-PRF-28800F Class 3

Regulatory and Compliance

Electromagnetic Compatibility (EMC)	IEC 61326-1, EN 61326-1, AS/NZS CISPR 11, ICES/NMB-001, KC
Safety Standards Compliance	IEC 61010-1, EN 61010-1, CAN/CSA-C22.2 No. 61010-1

Performance

Zero Set	1.25 μW
Zero Drift	0.35 μW
Measurement Noise	2.5 μW
Aperture Time Range	100 μs to 1.4 s
Aperture Time Resolution	100 μs

Accuracy

Calibration Uncertainty (10 MHz to 30 MHz)	3.5%
Calibration Uncertainty (30 MHz to 500 MHz)	4.0%
Calibration Uncertainty (500 MHz to 1.2 GHz)	4.1%
Calibration Uncertainty (1.2 GHz to 6 GHz)	4.3%
Linearity Temperature Coefficient (0 to 15 °C and 35 to 55 °C)	±0.15% / °C

Triggering

External Trigger Delay Range	-0.15 s to +8 s
External Trigger Delay Resolution	1 µs
External Trigger Holdoff Range	0 to 400 ms
External Trigger Holdoff Resolution	1 µs
External Trigger Latency	11 µs ± 2 µs
External Trigger Jitter	< 1 µs
External Trigger Input Impedance	> 10 kΩ
External Trigger Output Impedance	50 Ω (nominal)
Trigger Connector	10-pin multi-port connector (on sensor) to BNC (via trigger cable)

Power

USB Current Draw	< 275 mA
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Internal Trigger

Internal Trigger Threshold Range	+10 to +44 dBm
Internal Trigger Threshold Resolution	0.1 dB
Internal Trigger Threshold Accuracy	±1.0 dB
Internal Trigger Hysteresis	1 dB (typical)
Internal Trigger Delay Range	0 to 1.0 s
Internal Trigger Delay Resolution	1 µs
Internal Trigger Latency	11 µs ± 1 µs
Internal Trigger Jitter	±1 µs

RF Specifications

Integrated Attenuator Value	24 dB
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TECHNOLOGY

Diode average power sensor

APPLICATIONS

RF and microwave power measurements, high-power amplifier and transmitter testing

