

KEYSIGHT TECHNOLOGIES (AGILENT HP)

U8487A

The Keysight U8487A is a high-performance USB thermocouple power sensor designed to deliver fast, accurate average power measurements across an expansive frequency range of 10 MHz (or DC with Option CFT) up to 50 GHz. It features a patented real-time internal zero and calibration capability, eliminating the need for external calibration source connection and saving valuable test time.

SPECIFICATIONS

General

Interfaces	USB 2.0, Micro-B connector
Display	None (Requires host PC software or compatible Keysight instrument)
SCPI Compliance	SCPI-1999

Physical

Power Supply	USB bus powered, 5 V nominal, < 1.1 W typical power consumption
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	46 mm × 36 mm × 134 mm mm
Weight	0.262 kg

Measurement Ranges & Power Specifications

Frequency Range Minimum	10 MHz (Option 100) / DC (Option CFT)
Frequency Range Maximum	50 GHz
Power Measurement Range Minimum	-35 dBm
Power Measurement Range Maximum	+20 dBm
Maximum Continuous Input Power	+25 dBm average
Maximum Peak Input Power	+25 dBm peak
Maximum DC Input Voltage	10 V (Option 100) / 0 V (Option CFT)

Sensor Technology & Architecture

Sensor Detection Type	Thermocouple
Measurement Modes Supported	Average power
Dynamic Range	55 dB

RF Port Characteristics

Input Impedance	50 Ω
RF Connector Type	2.4 mm
Connector Sex	Male
Maximum SWR (10 MHz to 2 GHz)	1.11
Maximum SWR (2 GHz to 12.4 GHz)	1.17
Maximum SWR (12.4 GHz to 30 GHz)	1.24
Maximum SWR (30 GHz to 40 GHz)	1.30
Maximum SWR (40 GHz to 50 GHz)	1.35

Accuracy, Calibration & Noise

Power Linearity	< 0.80% (-35 dBm to +20 dBm)
Internal Calibration Support	Yes (Real-time internal zero and calibration)
Recommended Calibration Cycle	1 year

Connectivity & Host Interfaces

Host Interface Type	USB 2.0 (High Speed / Full Speed compatible)
Interface Connector Type	Micro-B
Current Draw	< 230 mA typical
Command Set Support	SCPI
Driver Support	IVI-COM, IVI-C, LabVIEW
Software Compatibility	Keysight BenchVue Power Meter App, BV0007B

Meter Compatibility & System Integration

Compatible Power Meter Models	PC-based operation, select Keysight instruments (FieldFox, MXG)
Calibration Factor Storage Type	Internal EEPROM (automatically loaded into sensor)

Environmental Parameters

Storage Temperature Range	-40 °C 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)
Maximum Operating Altitude	4600 m (15000 ft)
Vibration Resistance	Tested to MIL-PRF-28800F Class 3 random vibration
Shock Resistance	Tested to MIL-PRF-28800F Class 3 half-sine shock

Regulatory Compliance

EMC Standards Compliance	IEC 61326-1, EN 55011, ICES/NMB-001
Safety Standards Compliance	IEC 61010-1, EN 61010-1, CSA C22.2 No. 61010-1
RoHS Compliance	Yes

Physical Dimensions & Weight

Sensor Width	46 mm
Sensor Height	36 mm
Sensor Depth	134 mm
Standard Accessories Included	USB cable (1.5 m), Certificate of Calibration, Quick Start Guide

Performance

Zero Set	25 nW
Zero Drift	7 nW (over 1 hour at constant temperature)
Measurement Noise	80 nW
Measurement Speed (Free Run)	40 readings/s
Measurement Speed (Fast Mode)	400 readings/s
Measurement Speed (Buffered Mode)	900 readings/s
Warm-up Time	45 minutes
Input Coupling	AC
Built-In Real-Time Measurement Uncertainty Calculation	Supported (calculates overall uncertainty on-the-fly based on SWR, calibration factor, linearity, and temperature)
Aperture Time Configurable Range	1 ms to 10 s

Connectivity

USB Class Compliance	USB-TMC (Test and Measurement Class)
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Triggering

External Triggering Option	Option 100 (adds external trigger I/O capability via 5-pin multi-functional cable)
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Calibration

Internal Calibration Reference Type	Built-in DC reference (eliminates the need for an external 50 MHz source)
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TECHNOLOGY

Thermocouple

APPLICATIONS

RF and Microwave Power Measurement

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