

KEYSIGHT TECHNOLOGIES (AGILENT HP)

8497K

The Keysight (Agilent) 8497K is a programmable coaxial step attenuator operating from DC to 26.5 GHz. It offers a 90 dB attenuation range in 10 dB steps, featuring high repeatability of 0.01 dB typical and an operating life of over 5 million cycles per section. Designed for automated RF and microwave testing systems, it employs 24 VDC solenoid drive coils and is compatible with the 11713 series attenuator/switch drivers.

SPECIFICATIONS

General

Interfaces	12-pin Viking (standard), optional 14-pin DIP
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Physical

Power Supply	24 VDC nominal (20 to 30 VDC operating range)
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	52 mm × 43 mm × 168 mm mm
Weight	0.46 kg kg
Ribbon Cable Length Options	8 in (Option 008) / 16 in (Option 016)
Individual Section Attenuation Values	10 dB, 20 dB, 30 dB, 30 dB

RF Performance

Frequency Range	DC to 26.5 GHz
Attenuation Range	0 to 90 dB
Attenuation Steps	10 dB
Nominal Impedance	50 Ω
Maximum Insertion Loss	0.4 dB + 0.09 dB/GHz
Maximum VSWR (DC to 6 GHz)	1.35
Maximum VSWR (6 to 12.4 GHz)	1.5
Maximum VSWR (12.4 to 18 GHz)	1.7
Maximum VSWR (18 to 26.5 GHz)	2.0
Maximum RF Input Power (Average)	1 W
Maximum RF Input Power (Peak)	100 W
RF Peak Power Pulse Width	10 μ s
RF Peak Power Duty Cycle	0.001 (0.1%)
Attenuation Repeatability (Maximum)	0.03 dB
Attenuation Repeatability (Typical)	0.01 dB
Expected Life (per section)	5 million cycles
Attenuation Accuracy at 10 dB (DC to 6 GHz)	± 0.3 dB
Attenuation Accuracy at 10 dB (6 to 12.4 GHz)	± 0.5 dB
Attenuation Accuracy at 10 dB (12.4 to 18 GHz)	± 0.6 dB
Attenuation Accuracy at 10 dB (18 to 26.5 GHz)	± 0.7 dB
Attenuation Accuracy at 20 dB (DC to 6 GHz)	± 0.4 dB
Attenuation Accuracy at 20 dB (6 to 12.4 GHz)	± 0.6 dB
Attenuation Accuracy at 20 dB (12.4 to 18 GHz)	± 0.7 dB
Attenuation Accuracy at 20 dB (18 to 26.5 GHz)	± 0.8 dB
Attenuation Accuracy at 30 dB (DC to 6 GHz)	± 0.5 dB
Attenuation Accuracy at 30 dB (6 to 12.4 GHz)	± 0.7 dB
Attenuation Accuracy at 30 dB (12.4 to 18 GHz)	± 0.9 dB
Attenuation Accuracy at 30 dB (18 to 26.5 GHz)	± 1.0 dB
Attenuation Accuracy at 40 dB (DC to 6 GHz)	± 0.7 dB
Attenuation Accuracy at 40 dB (6 to 12.4 GHz)	± 1.0 dB
Attenuation Accuracy at 40 dB (12.4 to 18 GHz)	± 1.2 dB

Attenuation Accuracy at 40 dB (18 to 26.5 GHz)	±1.4 dB
Attenuation Accuracy at 50 dB (DC to 6 GHz)	±0.8 dB
Attenuation Accuracy at 50 dB (6 to 12.4 GHz)	±1.2 dB
Attenuation Accuracy at 50 dB (12.4 to 18 GHz)	±1.9 dB
Attenuation Accuracy at 50 dB (18 to 26.5 GHz)	±2.1 dB
Attenuation Accuracy at 60 dB (DC to 6 GHz)	±1.0 dB
Attenuation Accuracy at 60 dB (6 to 12.4 GHz)	±1.4 dB
Attenuation Accuracy at 60 dB (12.4 to 18 GHz)	±2.1 dB
Attenuation Accuracy at 60 dB (18 to 26.5 GHz)	±2.4 dB
Attenuation Accuracy at 70 dB (DC to 6 GHz)	±1.1 dB
Attenuation Accuracy at 70 dB (6 to 12.4 GHz)	±1.6 dB
Attenuation Accuracy at 70 dB (12.4 to 18 GHz)	±2.3 dB
Attenuation Accuracy at 70 dB (18 to 26.5 GHz)	±2.6 dB
Attenuation Accuracy at 80 dB (DC to 6 GHz)	±1.2 dB
Attenuation Accuracy at 80 dB (6 to 12.4 GHz)	±1.8 dB
Attenuation Accuracy at 80 dB (12.4 to 18 GHz)	±2.5 dB
Attenuation Accuracy at 80 dB (18 to 26.5 GHz)	±2.8 dB
Attenuation Accuracy at 90 dB (DC to 6 GHz)	±1.3 dB
Attenuation Accuracy at 90 dB (6 to 12.4 GHz)	±2.0 dB
Attenuation Accuracy at 90 dB (12.4 to 18 GHz)	±2.7 dB
Attenuation Accuracy at 90 dB (18 to 26.5 GHz)	±3.0 dB

Control and Drive Specifications

Solenoid Nominal Voltage	24 VDC
Solenoid Operating Voltage Range	20 to 30 VDC
Solenoid Current (Switching)	117 mA at 20 VDC (per section)
Coil Resistance	185 Ω
Actuation Drive Type	Solenoid
Switching Speed (Maximum)	20 ms (including contact settling)

Mechanical and Physical Characteristics

RF Port 1 Connector Type	3.5 mm female
RF Port 2 Connector Type	3.5 mm female
Expected Actuation Life	5 million cycles per section
Mounting Configuration	Any position

Environmental Specifications

Operating Temperature Range	0 to +55 °C
Storage Temperature Range	-40 to +75 °C

Options and Configuration

Calibration Certificate Option	Option 890 (NIST traceable SWR and attenuation data)
Compatible Electronic Drivers	Agilent 11713A/B/C attenuator/switch driver

Performance

Attenuator Sections	4 sections (10, 20, 30, 30 dB)
Power Sensitivity	< 0.001 dB/W

Control & Connectivity

Control Connector Options	12-pin Viking (Option 060) / 16-pin ribbon cable (Option 016)
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Environmental

Operating Altitude	up to 4,600 m
Non-Operating Altitude	up to 15,200 m
Relative Humidity	95% RH @ 40 °C
Operating Shock	10 g (6 ms, half-sine)
Non-Operating Shock	500 g (1.8 ms, half-sine)
Operating Vibration	0.31 g (rms), 5 to 500 Hz
Non-Operating Vibration	2.41 g (rms), 5 to 2000 Hz

Solenoid Control

Solenoid Coil Resistance (5 V Option)	17 Ω
Solenoid Coil Resistance (15 V Option)	80 Ω
Solenoid Coil Resistance (24 V Option)	190 Ω
Solenoid Switching Current (5 V Option)	325 mA
Solenoid Switching Current (15 V Option)	188 mA
Solenoid Switching Current (24 V Option)	125 mA
Solenoid Operating Voltage Range (5 V Option)	4.5 to 7 V
Solenoid Operating Voltage Range (15 V Option)	12 to 20 V
Solenoid Operating Voltage Range (24 V Option)	20 to 30 V
Solenoid Duty Cycle (Maximum)	Continuous
Solenoid Actuation Pulse Duration (Minimum)	20 ms
Solenoid Actuation Pulse Duration (Maximum)	Continuous

TECHNOLOGY

Coaxial Step Attenuator

APPLICATIONS

RF/Microwave signal level control, automated test systems

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