

KEYSIGHT TECHNOLOGIES (AGILENT HP)

84906K

The Keysight (formerly Agilent HP) 84906K is a high-performance programmable electromechanical step attenuator designed for coaxial measurements from DC up to 26.5 GHz. It offers outstanding repeatability of better than 0.03 dB and a long operating life of over 5 million switching cycles per section. Featuring thin-film sapphire substrate attenuation cards, it delivers exceptional attenuation accuracy and extremely low SWR across its entire 0 to 90 dB range in 10-dB steps. Its compact footprint, 35% smaller than the legacy 8495/7 family, makes it ideal for seamless integration into ATE systems and RF instrumentation.

SPECIFICATIONS

General

Interfaces	10-pin programming connector socket
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Physical

Power Supply	24 VDC nominal (Option 024) / 15 VDC (Option 015) / 5 VDC (Option 011)
Operating Temperature	0 to 55 °C
Dimensions (W×H×D)	41.3 × 41.3 × 137.4 mm
Weight	0.291 kg

RF Performance Specifications

Frequency Range	DC to 26.5 GHz
Attenuation Range	0 to 90 dB
Attenuation Step Size	10 dB
Nominal Impedance	50 Ω
Maximum VSWR (DC to 12.4 GHz)	1.3
Insertion Loss at 0 dB	0.8 dB + 0.04 dB/GHz
Insertion Loss at 26.5 GHz	< 2.0 dB (typically 1.86 dB)
Maximum RF Input Power (Average)	1 W
Maximum RF Input Power (Peak)	100 W (pulse width $\leq$ 10 microseconds)
Attenuation Accuracy (at 10 dB, DC to 18 GHz)	± 0.5 dB
Attenuation Accuracy (at 10 dB, 18 to 26.5 GHz)	± 0.6 dB
Attenuation Accuracy (at 20 dB, DC to 18 GHz)	± 0.5 dB
Attenuation Accuracy (at 20 dB, 18 to 26.5 GHz)	± 0.6 dB
Attenuation Accuracy (at 30 dB, DC to 18 GHz)	± 0.6 dB
Attenuation Accuracy (at 30 dB, 18 to 26.5 GHz)	± 0.8 dB
Attenuation Accuracy (at 40 dB, DC to 18 GHz)	± 0.7 dB
Attenuation Accuracy (at 40 dB, 18 to 26.5 GHz)	± 1.0 dB
Attenuation Accuracy (at 50 dB, DC to 18 GHz)	± 0.8 dB
Attenuation Accuracy (at 50 dB, 18 to 26.5 GHz)	± 1.2 dB
Attenuation Accuracy (at 60 dB, DC to 18 GHz)	± 1.0 dB
Attenuation Accuracy (at 60 dB, 18 to 26.5 GHz)	± 1.4 dB
Attenuation Accuracy (at 70 dB, DC to 18 GHz)	± 1.1 dB
Attenuation Accuracy (at 70 dB, 18 to 26.5 GHz)	± 1.6 dB
Attenuation Accuracy (at 80 dB, DC to 18 GHz)	± 1.2 dB
Attenuation Accuracy (at 80 dB, 18 to 26.5 GHz)	± 1.8 dB
Attenuation Accuracy (at 90 dB, DC to 18 GHz)	± 1.4 dB
Attenuation Accuracy (at 90 dB, 18 to 26.5 GHz)	± 2.0 dB
Attenuation Card Substrate Material	Tantalum nitride thin-film on sapphire substrate

Electrical & Control Specifications

Actuation Type	Solenoid (Electromechanical)
Solenoid Current per Section (24V)	117 mA
Switching Speed (Maximum)	20 ms

Mechanical & Physical Specifications

RF Input/Output Connector Options	3.5 mm female (standard) or 3.5 mm male/female combo
Control Interface Connector Type	10-pin socket

Reliability & Durability

Switching Life (Minimum)	5 million cycles per section
Attenuation Repeatability over Lifetime	0.03 dB maximum

Technical Specifications

Number of Attenuator Sections	4
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Environmental

Non-operating Temperature Range	-40 to +75 °C
Operating Altitude	4,570 m
Non-operating Altitude	15,240 m
Relative Humidity	95% RH at 40 °C for 5 days
Environmental Compliance	MIL-STD-202

Connectivity

RF Connector Types	3.5 mm female (Option 004) or 3.5 mm male/female (Option 008)
Control Connector Options	10-pin ribbon cable (Option 016) or 12-pin Viking (Option 060)

Power

Solenoid Supply Voltage (Nominal)	24 V (20 to 30 V)
Solenoid Supply Voltage (Optional 15V)	15 V (13 to 22 V)
Solenoid Supply Voltage (Optional 5V)	5 V (4.5 to 7 V)
Solenoid Current per Section (15V)	188 mA
Solenoid Current per Section (5V)	325 mA
Solenoid Coil Resistance (24V)	190 Ω
Solenoid Coil Resistance (15V)	80 Ω
Solenoid Coil Resistance (5V)	15 Ω

RF Performance

Maximum VSWR (DC to 4 GHz)	1.25
Maximum VSWR (4 to 12.4 GHz)	1.45
Maximum VSWR (12.4 to 18 GHz)	1.60
Maximum VSWR (18 to 26.5 GHz)	1.80
Maximum Insertion Loss (DC to 12.4 GHz)	0.8 dB
Maximum Insertion Loss (12.4 to 18 GHz)	1.2 dB
Maximum Insertion Loss (18 to 26.5 GHz)	1.6 dB

TECHNOLOGY

Electromechanical Coaxial Step Attenuator

APPLICATIONS

RF and microwave signal level control, ATE system integration, and test instrumentation

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