Microwave Attenuator Assemblies
Digital or Analog Controlled
Broadband, High Speed, Monotonic

- 0.2 to 40.0 GHz
- Power handling to +24 dBm
- High speed response
- Resolution to 10 Bits
- Monotonic Response
- Attenuation Range to 120 dB
- Flat Response
- Hermetic Sealed Option
Paciwave, Inc., is a leading supplier of Microwave Components and Custom Microwave Assemblies. Paciwave’s line of Digital or Analog Controlled Attenuator Assemblies are available as standard catalog items or custom built per individual customer requirement. Attenuators are available in narrow band versions, as well as broadband versions with attenuation ranges to 120 dB.

Units feature compact packaging, fast attenuation response times, flat frequency response, low insertion loss, monotonic attenuation curves and good power handling capability.

Customization is available for packaging, exact frequency bands, resolution and attenuation range. Unit control can be via TTL, USB, LAN.

Integrated units are typically housed in a hermetically sealed enclosure, and are designed to operate in a Military tactical environment. Cooling, if needed, can be via conduction to baseplate. Paciwave looks forward to working with our customers on their Attenuator and other custom component requirements, please contact Paciwave directly or your local Paciwave Sales Representative.
ELECTRICAL SPECIFICATIONS
PIN ATTENUATOR

FREQ.: 1.0 TO 18 GHz
INSERTION LOSS: 5.0 dB
ATTENUATION RANGE: 30 dB
VSWR: 2:1
ATTENUATION CONTROL: 5 BIT BINARY
DC SUPPLY: +5V & −5V

NOTE:
1) RF PORTS: SMA−F
2) J1 PORT: 9 PIN MMD
3) WEIGHT: 60 GRAMS MAX.

MATERIAL: ALUMINUM 6061
PLATING: ELECTROLESS NICKEL PER AMS 2405B.
ELECTRICAL SPECIFICATIONS
PIN ATTENUATOR

FREQ.: 5.0 TO 11.0 GHz
INSERTION LOSS: 4.3dB
ATTENUATION RANGE: 31dB
VSWR: 2 : 1
ATTENUATION CONTROL: 5 BIT BINARY
DC SUPPLY: +5V & -5V

NOTE:
1) RF PORTS: SMA-F
2) J1 PORT: 9 PIN MMD PLUG
3) WEIGHT: 60 GRAMS MAX.

MATERIAL: ALUMINUM 6061
FINISH: ELECTROLESS NICKEL PER AMS 2405B.

ELECTRICAL SPECIFICATIONS
PIN ATTENUATOR

FREQ.: 2.0 TO 8.0 GHz
INSERTION LOSS: 3.6dB
ATTENUATION RANGE: 31dB
VSWR: 2 : 1
ATTENUATION CONTROL: 5 BIT BINARY
DC SUPPLY: +5V & -5V

NOTE:
1) RF PORTS: SMA-F
2) J1 PORT: 9 PIN MMD PLUG
3) WEIGHT: 60 GRAMS MAX.
ELECTRICAL SPECIFICATIONS
DIGITAL PIN ATTENUATOR

FREQ.: 0.5 to 18 GHz
INSERTION LOSS: 5.0 dB
ATTENUATION RANGE: 31 dB
VSWR: 2 : 1
ATTENUATION CONTROL: 5 BIT BINARY
ATTENUATION ACCURACY: ±10%
SWITCHING SPEED: 100 nsec
DC SUPPLY: +5V@150mA & -5V@100mA

NOTE:
1) RF PORTS: SMA-F
2) J1 PORT: 9 PIN MMD PLUG
3) WEIGHT: 60 GRAMS MAX.

MATERIAL: ALUMINUM 6061
PLATING: ELECTROLESS NICKEL PER AMS 2405B.

ELECTRICAL SPECIFICATIONS
DIGITAL PIN ATTENUATOR

FREQ.: 0.300 to 0.500 GHz
INSERTION LOSS: 3 dB
ATTENUATION RANGE: 80 dB
VSWR: 2 : 1
ATTENUATION CONTROL: 6 BIT BINARY
DC SUPPLY: +15V@200mA & -12V@150mA

NOTE:
1) RF PORTS: SMA-F
2) J1 PORT: 9 PIN MMD PLUG
3) WEIGHT: 60 GRAMS MAX.

MATERIAL: ALUMINUM 6061
PLATING: ELECTROLESS NICKEL PER AMS 2405B.
6 BIT DIGITAL PIN ATTENUATOR
ELECTRICAL SPECIFICATIONS:
- FREQ.: 0.5 TO 18 GHz
- ATTEN. RANGE: 66 dB MIN.
- INSERTION LOSS: 53dB MAX.
- ATTENUATION ACCURACY: +/- 10%
- FREQ. FLATNESS: +/- 0.5 dB
- OPERATING TEMPERATURE: -54°C TO +85°C
- CONTROL: TTL
- DC SUPPLY: +5V & 100mA

TERMINAL:
J1 - RF, SMA-F
J2 - RF, SMA-F
J3 - 15 PIN MMD CONNECTOR

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10 BIT DIGITAL ATTENUATOR
ELECTRICAL SPECIFICATIONS:
- FREQ.: 20 TO 18.0 GHz
- ATTEN. RANGE: 64 dB MAX.
- INSERTION LOSS: 0.4 dB MAX.
- SWITCHING SPEED: 90% 50% TTL TO 0.266dB
- VSWR: 1:N X ALL ATTENUATE STATES
- FREQ. FLATNESS: 0.5 TO 10.0 dB = 0.05 dB
10.1 TO 20.0 dB = 0.05 dB
20.1 TO 40.0 dB = 0.05 dB
40.1 TO 64.0 dB = 0.05 dB
- ATTENUATION CONTROL: TTL STD, 15B, 0.06B
- INPUT POWER: 14dBm MIN.
- ANALOG TEST POINT: DAC OUTPUT MONITOR
- LOGIC CONTROL: LOGIC 'H' ACTIVE
- DIG SUPPLY: 15V, 120mA MAX; 15V, 150mA
- OPERATING TEMPERATURE: 0°C TO +55°C
- STORAGE TEMPERATURE: -40°C TO +85°C
- TEMPERATURE COMPENSATION: 0.008% / °C

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PWR/LOGIC:
1 NC
2 NC
3 BIT 0
4 BIT 1
5 BIT 2
6 BIT 3
7 BIT 4
8 BIT 5
9 BIT 6
10 BIT 7
11 BIT 8
12 BIT 9
13 +5V
14 -5V
15 GND

J1 - SMA - FEMALE
J2 - SMA - FEMALE
PWR/LOGIC - SAPI 15 SUB CONNECTOR
6 BIT DIGITAL ATTENUATOR

ELECTRICAL SPECIFICATIONS:

* FREQ.: 8.60 TO 10.60 GHz
* FREQ. FLATNESS: 1.0 dB AT 0dB ATT.
* INSERTION LOSS: 8.0dB MAX, 7.0dB GOAL
* VSWR: 1.5 : 1 IN/OUT, (1.21:1 GOAL)
* POWER HANDLING: +23dBm MIN.
* ATTEN. CONTROL: TTL LOW ON / HIGH-OFF
* ATTEN. RANGE: 83dB
* L1-LSB (1.0dB), L6-MSB (31.5dB)
* OPERATING TEMPERATURE: -40°C TO +85°C
* ATTEN ACCURACY: ±0.5dB TO 20dB
* ATTEN ACCURACY: ±1.0dB TO 30dB
* ATTEN ACCURACY: ±2.0dB TO 50dB
* ATTEN ACCURACY: ±2.5dB TO 60dB
* DC SUPPLY: +5V @ 100mA, -5V @ 100mA
CURRENT CONTROLLED PIN ATTENUATOR ELECTRICAL SPECIFICATIONS:

- Freq: 0.5 to 18 GHz
- Attenuation: 0 to 50dB
- Insertion loss: ≤ 35dB
- Bias current: ±0.5mA typ.
- Freq. flatness: ±0.5dB
- Operating temperature: -54°C to +85°C

TERMINAL:
- J1 - RF, SMA-F
- J2 - RF, SMA-F
- BS - BIAS, SERIES, SMC-F
- BT - BIAS TOTAL, SMC-M
- G - GND, SOLIDER PIN

NOTES:
1. MATERIAL: AL 6061
2. FINISH ELECT. NICKEL 300 - 500 MICRON INCHES THK

VOLTAGE CONTROLLED PIN ATTENUATOR ELECTRICAL SPECIFICATIONS:

- Freq.: 820 to 4.0 GHz
- Attenuation range: 90dB
- Insertion loss: ≤ 35dB
- Control voltage: 0 to 6V DC
- Accuracy of attenuation: ±0.56dB (90dB)
- VSWR: 1.5:1
- Operating power: 100mW
- Survival power: 1.0 Watt, AVG.
- DC Supply: ±12V @ 100mA, ±12V @ 50mA
- Bias input impedance: 10K OHMS
- Operating temperature: -54°C to +85°C

TERMINAL:
- J1: RF, SMA-F
- J2: RF, SMA-F
- B: BIAS (VOLTAGE CONTROL)
- -V: -12V DC SUPPLY
- +V: +12V DC SUPPLY
- G: DC RETURN / GND

PROPRIETARY
CURRENT CONTROLLED ATTENUATOR
ELECTRICAL SPECIFICATIONS:

* FREQ: 1.2 to 1.45 GHz
* INSERTION LOSS: 0.5dB
* ATTENUATION RANGE: 0 to 64dB
* VSWR: 1.5:1
* VARIATION OF ATTEN: ±1.0 dB or ±4%
  WITH TEMP, (-54°C TO +85°C)
* POWER HANDLING: 200 WATT PEAK
  1 WATT CW
* CONTROL: 0 to 30mA NEGATIVE CURRENT
* OPERATING TEMP: -54°C TO +85°C
* STORAGE TEMP: -65°C TO +125°C

PROPRIETARY

ELECTRICAL SPECIFICATIONS
VOLTAGE CONTROL PIN ATTENUATOR

FREQ: 2.0 TO 6.0 GHz
INSERTION LOSS: 5.0 dB MAX
ATTENUATION RANGE: 50dB MIN.
VSWR: 1.8:1
ATTENUATION CONTROL: 10dB/VOLT
ATTENUATION ACCURACY: ± 10%
MAX INPUT POWER: 1 WATT CW
P1dB INPUT: 10 dBm
DC SUPPLY: +15V @ 200mA
Paciwave additionally provides attenuators in drop-in or coaxial packages.
Please contact Paciwave directly for details.