

Programmable Attenuators



Model 4238 GaAs Switched Programmable Attenuator

10 MHz to 2.5 GHz
1 Watt

Low Insertion Loss, High IP3



Features

Ideal for use in Wireless/Cellular, RF Simulation/Emulation, & Communication Test Applications.

- /// **Broadband Performance** - 10 MHz to 2.5 GHz usable dc to 10 MHz with reduced specifications
- /// **High IP3 and High Power Rating** - Utilizes MESFET Switching
- /// **Flexible DC Voltage (+5 to +15 V)**
- /// **Low DC Power Consumption** - Ideal for portable battery powered equipment.
- /// **Custom Configurations including bus controlled attenuator subsystems**

Specifications

NOMINAL IMPEDANCE: 50 Ω

FREQUENCY RANGE: 10 MHz to 2.5 GHz

MAXIMUM SWR:

Frequency Range (GHz)	SWR
0.01 - 0.25	1.75
0.25 - 2.5	1.40

CELL CONFIGURATIONS:

Model Number	NO. Cells	Attenuation Range/Steps (dB)	Cell Increments (dB)
4238-63.75	8	63.75/0.25	0.25, 0.5, 1, 2, 4, 8, 16, 32
4238-103	8	103/1	1, 2, 4, 8, 16, 24, 48

INCREMENTAL ATTENUATION ACCURACY:

CELL	0.25	0.50	1	2	4	8	16	24	32	48
dB	±0.15	±0.15	±0.2	±0.2	±0.2	±0.2	±0.3	±0.4	±0.6	±0.8

MAXIMUM INSERTION LOSS (dB):

Frequency Range (GHz)	4238-X
0.01 - 1.0	6.75
1.0 - 2.0	8.25
2.0 - 2.5	9.75

MONOTONICITY: 10 MHz to 2.5 GHz
(minimum 1 dB change)

3rd ORDER INTERMODULATION (IM3): -60 dBm typical, measured with two +27 dBm tones @ 869 MHz (f1) and 894 MHz (f2), the IM3 frequency being 847 MHz (2f1-f2).

$$IP3 \text{ (input)} = +65 \text{ dBm}$$

The input IP3 is derived from the following relationship:

$$IP3 = \frac{3(Pin - \alpha) - IM3}{2} + \alpha$$

where α = the insertion loss (dB) at the IM3 frequency;

Pin=single tone input power (dBm).

INPUT POWER RATING: +30 dBm

SWITCHING TIME: 5 μsec. maximum

OPERATING VOLTAGE: + 5 to +15 V

OPERATING CURRENT: 25 mA typical

TEMPERATURE RANGE (Operating): 0°C to +70°C

TEMPERATURE COEFFICIENT: <0.002/dB/dB/°C

CONNECTORS: SMA female connectors - mate nondestructively with MIL-C-39012 connectors.

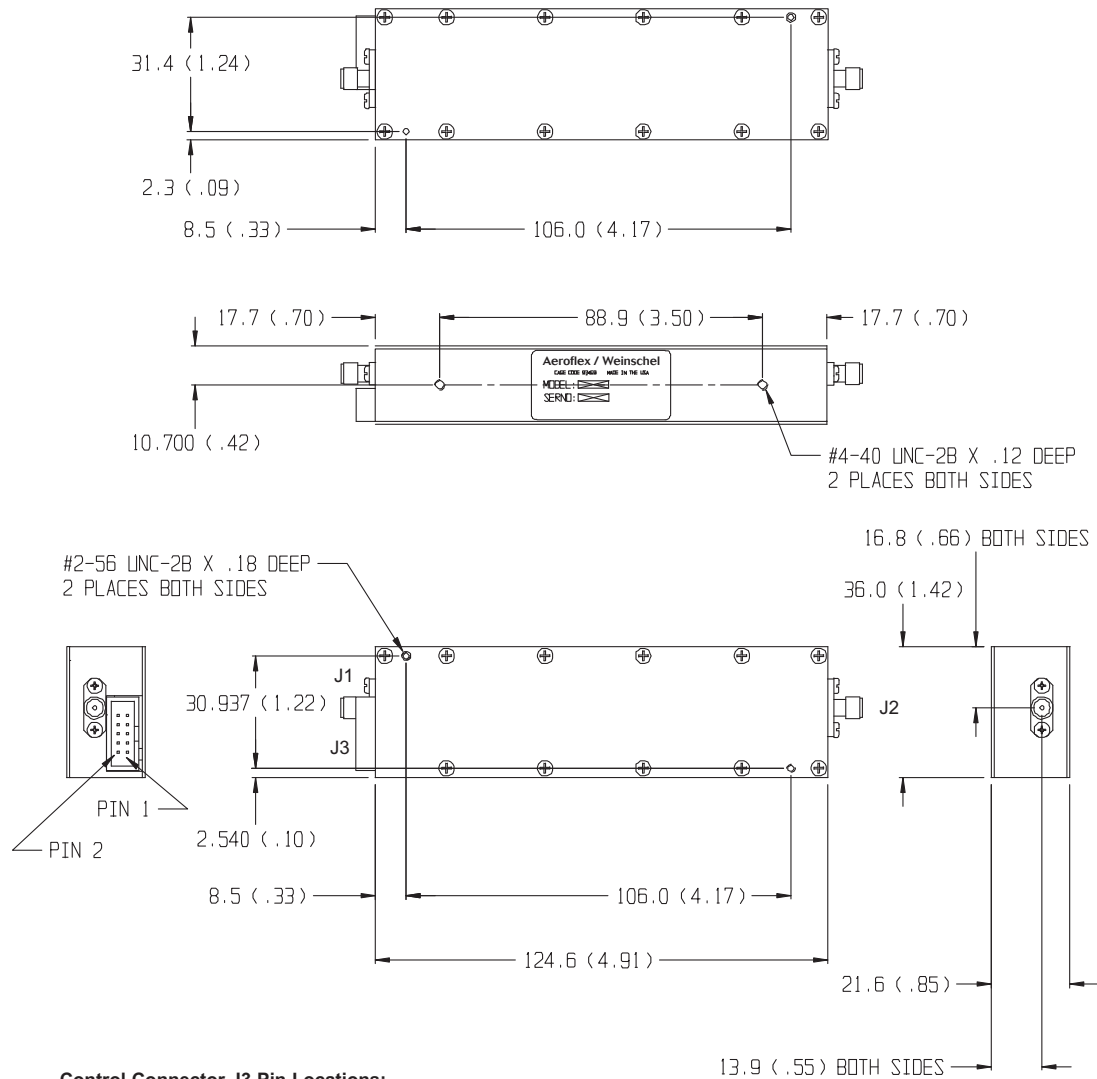
CONTROL CONNECTOR: AMP-Latch 10 pin ribbon cable connector mates with AMP P/N 746285-1 (supplied with each unit)

WEIGHT: 4238-X 150 g (5.3 oz)

CONTROL CONFIGURATION: Units are supplied with a built-in TTL interface. Each unit is supplied with a mating 10 pin connector (Amp 746285-1). Refer to Physical Dimensions for mating connector pin/wiring details. Two wires are specified for supply voltage and ground. The remaining wires will accept TTL control signals to activate or de-activate a particular attenuation cell. A TTL high will energize a cell to the high attenuation state, whereas a TTL low will maintain a cell in its zero attenuation state.

PHYSICAL DIMENSIONS:

Model 4238:



Control Connector J3 Pin Locations:

TTL Conn PIN No. (J3)	4238-103 dB (Cell)	4238-63.75 dB (Cell)
1	1	0.25
2	2	0.50
3	4	1
4	8	2
5	16	4
6	24	8
7	48	16
8	NC*	32
9	+5 to 15V	+5 to 15V
10	COM	COM

NC = Not Connected
* For Factory use only.

NOTE:

- All dimensions are given in mm (inches) and are maximum, unless otherwise specified.
- Unit available with RoHS compliant materials, specify when ordering.