

# **INSTALLATION & OPERATING INSTRUCTIONS**

## **Model 4238 GaAs Switched Programmable Attenuators**



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GENERAL

This manual provides general installation instructions and wiring data to be used as an aid in installing the MCE/Weinschel Model 4238 Series GaAs Switched Programmable Attenuators into any subsystem or application. Also included are specifications and other technical data to help in the installation and operation of your 4238 Series Programmable Attenuator.



**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 connector pin/wiring for mating details. Two wires are specified for supply voltage and ground. The remaining wires will accept TTL control signals to activate or deactivate 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.

CELL CONFIGURATION

The table below list all the standard attenuation ranges and cell configurations for MCE/Weinschel Model 4238 Series GaAs Switched Programmable Attenuators. Note the dash number is the attenuation value of your attenuator.

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



## SPECIFICATIONS

**NOMINAL IMPEDANCE:** 50  $\Omega$

**FREQUENCY RANGE:** 10 MHz to 2.5 GHz, usable dc to 10 MHz with reduced specifications

**SWR (Maximum):**

0.01 - 0.20	1.60
0.20 - 2.5	1.40

**MONOTONICITY:** 10 MHz to 2.5 GHz

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

### INCREMENTAL ATTENUATION ACCURACY:

**INSERTION LOSS, Maximum (dB):**

0.01 - 1.0	6.50
1.0 - 2.0	8.00
2.0 - 2.5	9.00

**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* (input) = +65 dBm

The input *IP3* is derived from the following relationship:

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

where  $\alpha$  = the insertion loss (dB) at the IM3 frequency; Pin=single tone input power (dBm).

**INPUT POWER RATING:** +30 dBm

**OPERATING VOLTAGE:** +5 to +15 V

**OPERATING CURRENT:** 25 mA typical

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

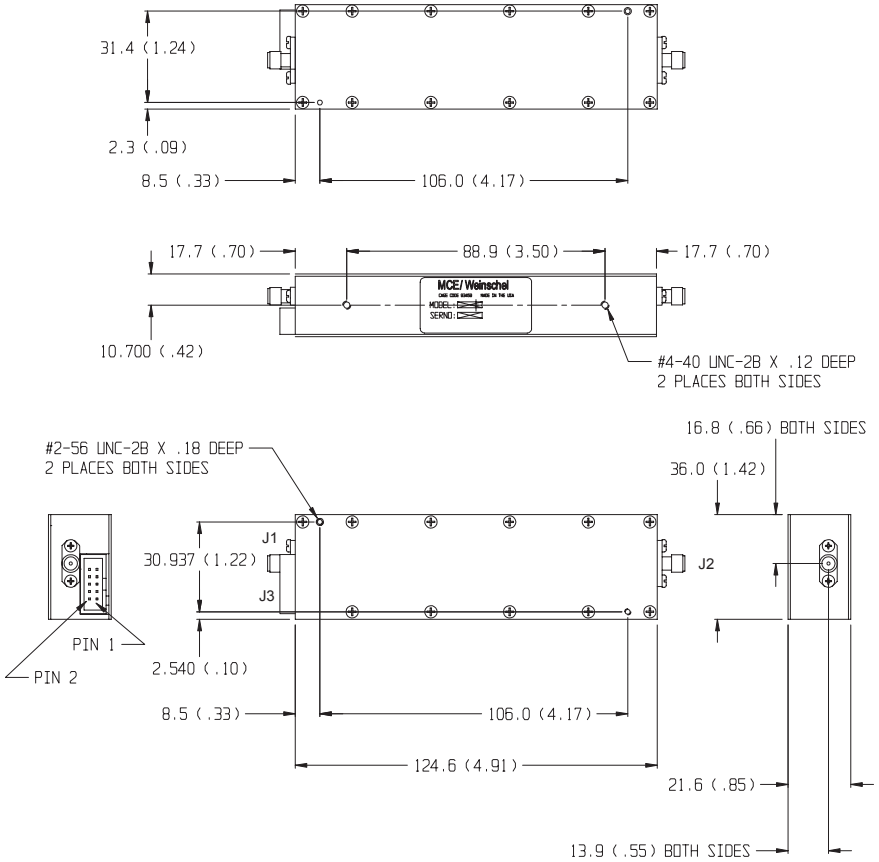
**TEMPERATURE COEFFICIENT:** 0.002 dB/dB/°C

**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)

## PHYSICAL DIMENSIONS:



NOTE: All dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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**PRODUCTS:** MCE/Weinschel Corporation warrants each product it manufactures to be free from defects in material and workmanship under normal use and service anywhere in the world. Weinschel Corporation's only obligation under this Warranty is to repair or replace, at its plant, any product or part thereof that is returned with transportation charges prepaid to MCE/Weinschel Corporation by the original purchaser within ONE YEAR from the date of shipment.

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MCE/Weinschel Corporation's Quality System Certified to:



**Certificate No. 94-289D**

## **CONTACTING MCE / Weinschel Corporation**

In the event you're having difficulty or believe that the components are defective, please contact Weinschel immediately. An apparent malfunction may be corrected over the phone by contacting the Customer Service Department at Weinschel. DO NOT send the product back to the factory without prior authorization (RMA number). When it is necessary to return an item, state the symptoms or problems, catalog and type number of the attenuator, and date of original purchase. Also write the company name, your name, and phone number on an index card. Then attach the card to the attenuator to be returned.

For more information or any questions about your Programmable Step Attenuators and/or other MCE / Weinschel products, contact the Sales Department at MCE / Weinschel Corporation.



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