INSTALLATION & OPERATING INSTRUCTIONS

Model 4238 GaAs Switched Programmable Attenuators



This documentation may not be reproduced in any form, for any purpose unless authorized in writing by MCE/Weinschel Corporation.



© MCE/Weinschel Corporation Frederick, Maryland

rederick, Maryland 2002

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.

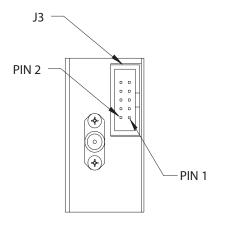
Model Number	NO. Cells	Attenuation Range/Steps (dB)	Cell Increments (dB)		
4238-103	8	103/1	1, 2, 4, 8, 16, 24, 48		
4238-63.75	8	63.75/0.25	0.25, 0.5, 1, 2, 4, 8, 16, 32		

INSTALLATION

MOUNTING: Each Programmable Attenuator is supplied with two #4-40 UNC-2B X3.0 [0.12] mounting holes on either side of the attenuator. There are also two #2-56 UNC-2B X 3.0 [0.12] on the top and bottom of the attenuator which allows the attenuator to be mounted in any direction.

RF CABLE INSTALLATION: Care should be taken to prevent strain on the interconnecting cables, since damage here may not always be apparent. Check the attaching RF cables and the SMA connectors for signs of cracked insulation and/or bent or worn pins prior to connection. Tests show that connectors must be clean for accuracy and stability. This requires an inspection and cleaning of each connector immediately before use. When cleaning precautions are observed regularly, connectors can maintain their stability for over several thousand connection cycles. Weinschel recommends a torque value of 7 to 10 inch pounds when connecting any RF cable to the attenuator's RF connectors.

CONTROL CONNECTOR PIN/WIRING: The table below shows the connectors contact pin numbering scheme and the signal designator for signal present at each contact pin.



Control Connector J3 Pin Locations:

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

NC = Not Connected

^{*} For Factory use only.

SPECIFICATIONS

NOMINAL IMPEDANCE: 50 Ω

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

reducded 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	<u>+</u> 0.15	<u>+</u> 0.15	<u>+</u> 0.2	<u>+</u> 0.2	<u>+</u> 0.2	<u>+</u> 0.2	<u>+</u> 0.3	<u>+</u> 0.4	<u>+</u> 0.6	<u>+</u> 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 frequeny being 847 MHz (2fl-f2).

IP3 (input) = +65 dBm

The input IP3 is derived from the following relationship:

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

where α = 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

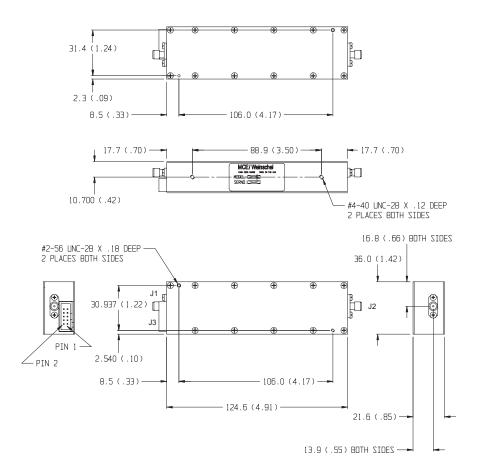
MIL-C-39012 connectors.

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.

MCE/Weinschel Corporation Warranty

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.

The foregoing Warranty does not apply to, and in MCE/Weinschel Corporation's sole opinion, products that have been subject to improper or inadequate maintenance, unauthorized modifications, misuse, or operation outside the environmental specifications for the product.

SOFTWARE PRODUCTS: MCE/Weinschel Corporation software products are supplied without representation or Warranty of any kind. MCE/Weinschel Corporation, therefore, assumes no responsibility and will not accept liability (consequential or otherwise) arising from the use of program materials, disk, or tape.

The Warranty period is controlled by the Warranty document furnished with each product and begins on the date of shipment. All Warranty returns must be authorized by MCE / Weinschel Corporation prior to their return.

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.



5305 Spectrum Drive, Frederick, Maryland 21703-7362 TEL: (301) 846-9222, 800-638-2048, FAX: (301) 846-9116 Web: www.weinschel.com, e-mail: sales@weinschel.com