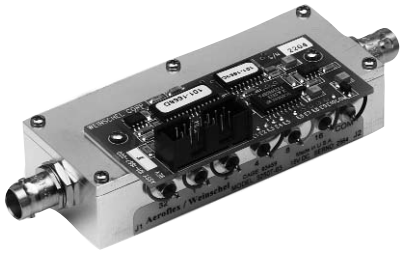
Model 3250 & 3250T Programmable Attenuators

with optional TTL Interface

dc to 1.0 GHz
1 Watt
75 Ω

T Series for use with Weinschel 8210A Controller



Features

- **Cost Effective design for Wireless/Cellular Applications.**
- **Optional Built-in Interface**
- **Custom Configurations including bus controlled attenuator subsystems**

Specifications

NOMINAL IMPEDANCE: 75 Ω
FREQUENCY RANGE: dc to 1.0 GHz:

MAXIMUM SWR:

Frequency Range (GHz)	SWR
dc - 0.5	1.60
0.5 - 1.0	1.40

CELL CONFIGURATIONS:

Model Number	NO. Cells	Attenuation Range/Steps (dB)	Cell Increments (dB)
3250-63	6	63/1	1, 2, 4, 8, 16, 32

INCREMENTAL ATTENUATION ACCURACY:

Frequency Range (GHz)	Accuracy
dc - 0.5	± 0.3 dB or 2.0%
0.5 - 1.0	± 0.4 dB or 2.0%

MAXIMUM CHARACTERISTIC ZERO LOSS (dB):

Frequency Range (GHz)	Loss (dB)
dc - 0.5	2.25
0.5 - 1.0	5.00

RATED SWITCH LIFE: 5 million operations per cell (typ)
SWITCHING TIME: 8 msec. maximum @ nominal rated voltage.
CYCLING RATE: 5 Hz maximum
OPERATING VOLTAGE: +11V to +16V
+12V to +17V (TTL opt -1)
OPERATING CURRENT: 16 mA maximum per cell
TEMPERATURE RANGE (Operating): -40 to +70°C
POWER RATING: 1 watt average, 50 watts peak (5 µsec pulse width; 1% duty cycle)
CONNECTORS: BNC female connectors per MIL-STD-348 interface dimensions - mate nondestructively with MIL-C-39012 connectors.

CONTROL TERMINALS: 0.040 inch. (1 mm) diameter solderable leads
CONSTRUCTION:
Housing: Aluminum
Connectors: Nickel plated brass body and beryllium copper contacts.
WEIGHT: 3250 140 g (4.5 oz)
3250T 189 g (4.9 oz)

ACCESSORIES

Programmable Attenuator/Switch Controller: The Model 8210A Programmable Attenuator/Switch Controller provides a flexible, low cost solution for the operation of programmable step attenuators and other electromechanical devices under computer control. Designed to interface to Aeroflex / Weinschel's intelligent programmable attenuators, the 8210A represents a new concept in device control applications for bench test and subsystem designs. The 8210A provides a high-level interface from various industry standard communications interfaces, including IEEE-488 and RS232/RS422/RS485, to the programmable attenuator's serial Driver Interface Bus.

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CONTROL CONFIGURATION:

Standard Unit: One terminal is connected to case ground and the remaining terminals are provided for activation of individual cells. Attenuation is fail-safe to "0" setting in the absence of a control voltage. Application of a voltage (+) to a particular cell causes it to switch to the attenuate position.

Units with TTL Option: Units with this options are supplied with a very low profile connectorized TTL interface board mounted directly to the control terminals. This TTL interface option is available with a 10 pin ribbon cable connector and is supplied with a mating connector. 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.

To order 3250 Series Attenuators with this option add -1 to basic model number for ribbon cable connector. Example: Model 3250-63 with a TTL interface would be 3250-63-1.

Note: Control is non-latching and requires a continuous control signal for the period of time in which attenuation is required.

TTL DRIVER SPECIFICATIONS:

INTERFACE CONNECTOR: Option -1: 10 pin .025 square post header on .1 center, mates with Amp connector 746285-1 or equivalent

INPUT VOLTAGE: V_{IN} High= +2.0V minimum
+5.0V typical
Vcc maximum
V_{IN} Low = 0 minimum
0.8 maximum

INPUT CURRENT: I_{IN} (V_{IN}=2.4 V) = 55 µA
I_{IN} (V_{IN}=3.85 V) = 280 µA

SUPPLY CURRENT: I_{CC}=25 mA maximum per cell

SUPPLY VOLTAGE: V_{CC}=+12.0 to +15 V

TEMPERATURE RANGE (Operating): -40 to +70 °C

Units with driver Circuitry (Figure 1): Model 3250T-63 features an internal microcontroller-based driver that provides a TTL-level digital interface for control of the attenuator relays. This card simplifies operation and interfacing requirements, while at the same time providing for greatly enhanced flexibility over past designs. User-selectable modes of operation include both parallel and serial bus. The parallel mode provides a simple, one-bit per relay on/off control with internal pullups for use primarily in single attenuator applications. This mode allows the attenuator to be controlled via a variety of methods, such as a TTL-level digital output port, or mechanical toggle switches. The built-in driver bus provides a two-wire serial bus structure and protocol for connecting a number of devices to a single host control interface, suitable for use in larger system and sub-system applications. This programmable attenuator contains non-volatile configuration memory that is used to hold a wide variety of attenuator and driver-dependent parameters, including serial number, attenuator cell dB values, relay configurations, and switching requirements, which are all accessible via the digital interface.

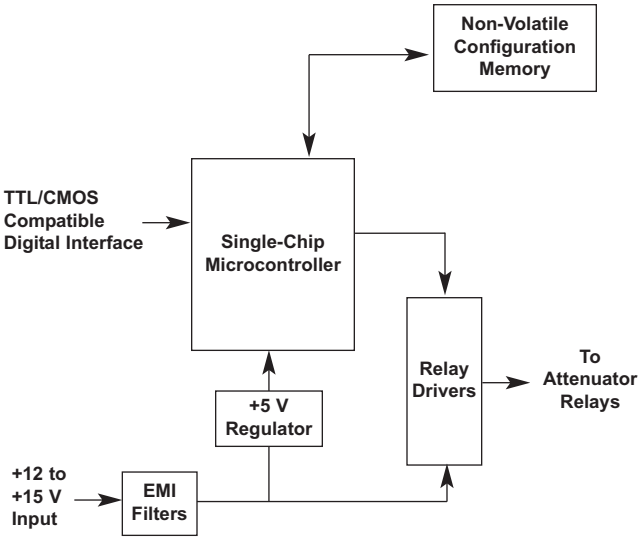

Figure 1. Built-In Driver Circuitry

Digital Driver Interface Specifications:

Input Supply Voltage: +12.0 to +15.0V

Control Signals: TTL/CMOS compatible

Interface Modes: parallel/ I^2C serial

DC Characteristics (at 25°C):

Digital Interface:

Parameter		Specification
VI_L	Low Level input:	-0.5 min, 0.8V max
V_{IH}	High Level input:	2.0 min, 5.25V max
I_{PU}	Pullup Current	50 µA min, 400 µA max

Power Supply:

V_{IN}	Supply Voltage:	+12.0 to +15.0V
I_{IN}	Supply current:	25 mA
I_{CELL}	Supply Current:	150 mA (per cell, switching)

TEMPERATURE: -20° to +70°C operating
-55° to +85°C nonoperating

INTERFACE CONNECTOR: 14 pin .025 square post header on .1 center. Mates with Amp connector 746285-2 or equivalent (one mating connector included with each unit).

MODEL NUMBER DESCRIPTION:

Example:

3250* - XX - X

- 3250*: Basic Model Number
- XX: Attenuation Value (dB)
- X: TTL Option (Add -1) Example: 3250-63-1

*Add T to Basic Model Number when ordering Digital Control Circuitry.

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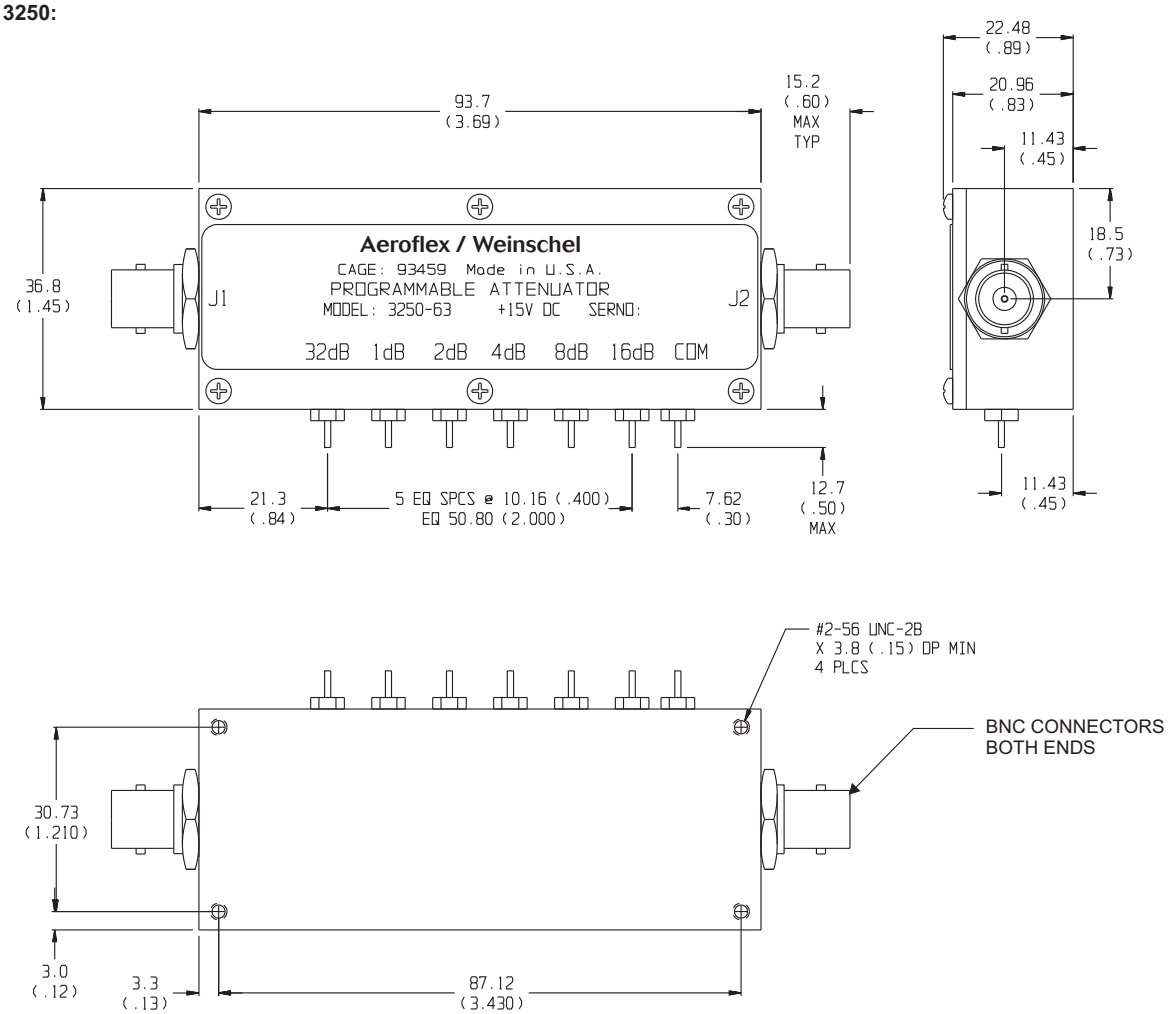
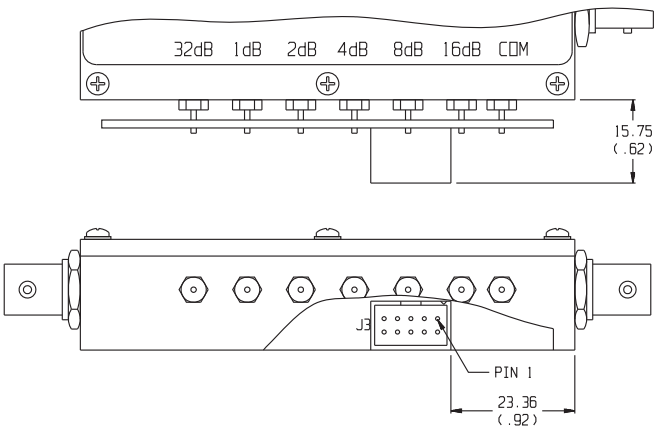
PHYSICAL DIMENSIONS:

Model 3250:



Model 3250 w/TTL Option -1:



Control Connector J3 Pin Locations:

TTL Conn PIN No. (J3)	3250-63-1 dB (Cell)
1	NC
2	NC
3	32
4	1
5	2
6	4
7	8
8	16
9	COM
10	+Vcc

NC = Not Connected

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

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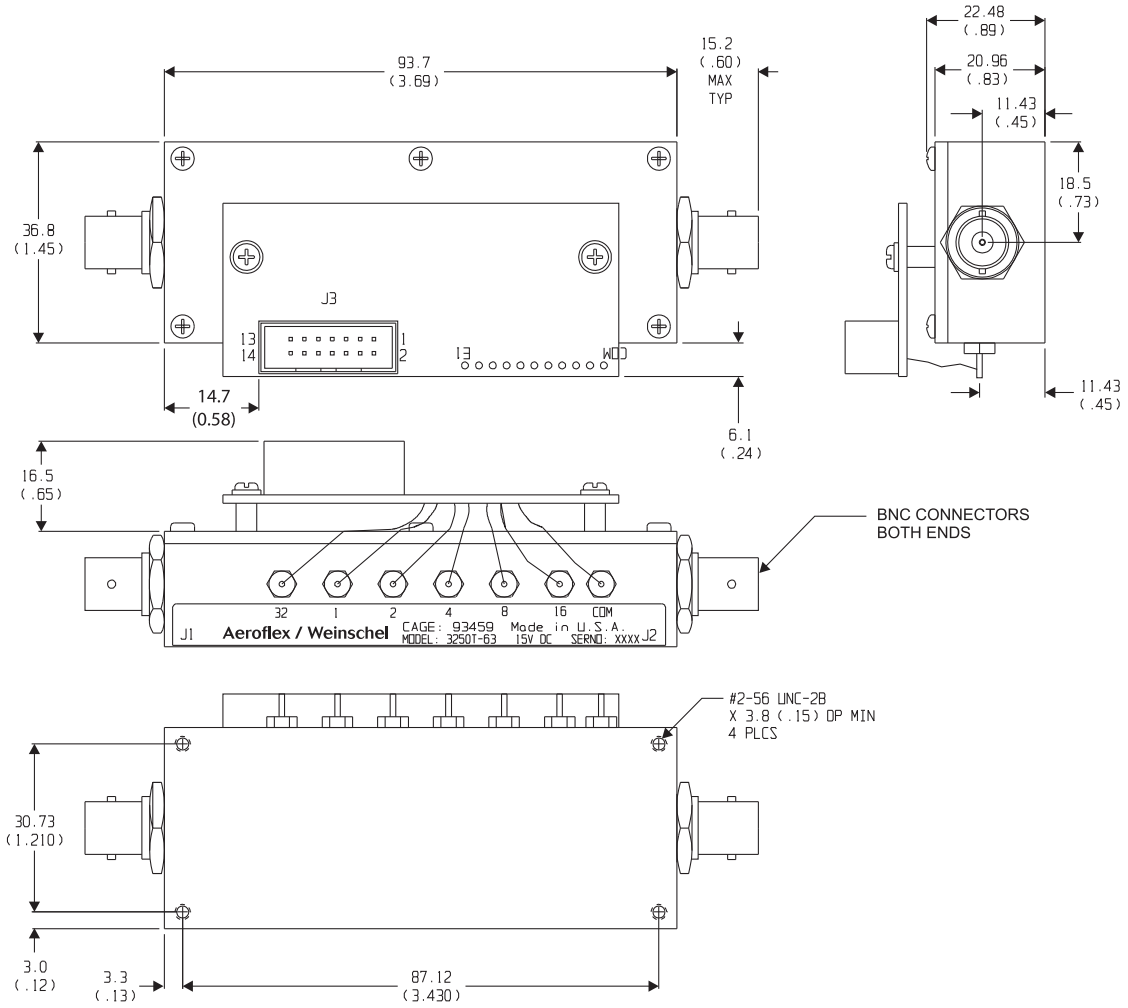
PHYSICAL DIMENSIONS:

Model 3250T:



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