

## Models 8331 Programmable Attenuator Unit Ethernet, USB & RS-232 Control



up to 40 GHz



### Features

- /// Provides a flexible, easy to program, low cost solution for your bench test/calibration setups and subsystem applications.
- /// Multi-Channel attenuation paths (up to 12 channels)
- /// Various Configurations, up to 40 GHz:
  - dc to 3, 6, 18, 26.5 & 40 GHz
  - Attenuation ranges up to 127 dB
  - 50 & 75  $\Omega$  Configurations
  - Solid-State & Electro-Mechanical types
  - New MMIC switched digital attenuators
  - Relay Switched
- /// Accuracy & Repeatability.
- /// Designed to incorporate Weinschel's line of digitally controlled programmable attenuators.
- /// Designed to interface with industry standard communication interfaces:
  - RS-232 (Serial)
  - Ethernet (10/100 BaseT)
  - USB 2.0

- /// **Rack Configurable:** Rack ears are supplied with Model 8331 Series units.
- /// Ideal for Automated Test Equipment (ATE), WiMAX, 3G Fading Simulators, Engineering/Production Test Lab environments.

### Applications

Designed with budget and performance concerns in mind, these devices offer superior RF characteristics suitable for automated bench testing in wireless backhaul, fading simulation, and other high performance wireless applications.

### Control Software Included



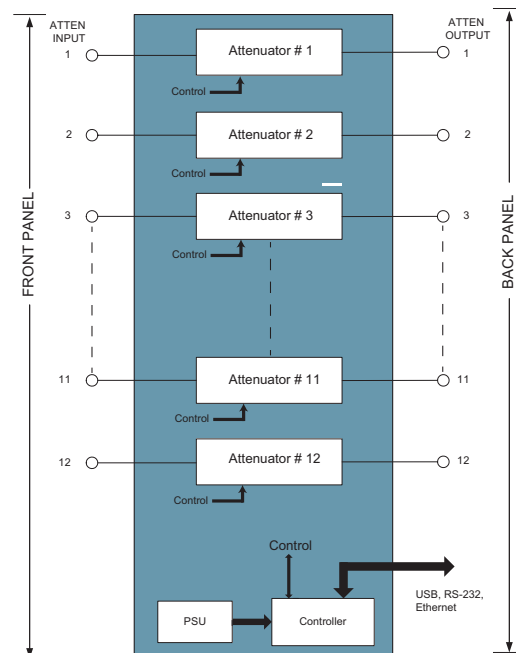
Weinschel's Labview based Attenuator Control Center Software (ACCS) can be used in conjunction with the operation of the this series of programmable attenuator units and allows the user to setup, control and perform test and measurements over standard communication interfaces such as RS-232, USB 2.0 or Ethernet.

### Description

Weinschel's New 8331 Series Programmable Attenuator Units offer a lower cost solution for automated bench test and subsystem applications. Standard 8331 Series designs house and control various Weinschel Programmable Attenuator Models (3200-XE, 3400, 150T, and 4200 Series) via ethernet, USB 2.0 and Serial communications interfaces.

Most 8331 Series are multi-channel configurations where RF signal is routed through either the front or rear mounted Ports. This series can be configured for up to 12 independent channels of attenuation. Multiple programmable attenuators can be used in conjunction with other coaxial devices such as switches, power combiners, directional couplers, and filters creating various multichannel test configurations.

Weinschel also provides custom subsystems where a variety of test configurations can be incorporated within a single unit. Contact us with your specialized needs.



*Simplified 12 Channel Block Diagram*

## Specifications

SPECIFICATION	DESCRIPTION
<b>Input Power Requirements</b>	ac 100 to 240 Vac, 50/60 Hz, 100 Watts max.
<b>Environmental</b>	Operating Temperature: 0° to +50°C Storage Temperature: -40° to +75°C (-40° to +167 °F) Humidity: up to 90% (non-condensing) Altitude: 40,000 ft. (12,192M)
<b>RS-232 Bus (1) Serial I/O</b>	Connector: 9-pin male D Signals: TXD, RXD, RTS, CTS, GND Baud Rates: 9600 to 230400 Data Bits: 8 Handshaking: None, RTS/CTS Parity: None
<b>USB 2.0</b>	Connector: Mini B
<b>Ethernet</b>	10/100 Base T Connector: Standard RJ45
<b>RF Characteristics(2)</b>	Refer to Configuration Matrix (pg 254)
<b>CE &amp; UL Compliant</b>	MET E113609 complies with UL61010-1 CSA C22.2 NO. 61010-1, CE CAN ICES-3 (B)/NMB-3(8)

1. RS-232 can be used with standard PC serial port for short and medium distances (up to approximately 50 ft).
2. Refer to Individual data sheet for detailed specifications on internal programmables.

## Model Number Configuration Matrix

**8331 - XX - XX - XX**

Basic Model Number

Attenuator Designator (see below)

Number of Channels (1) (01 to 12)

Connector Type  
 N: N (2)  
 S: SMA (3)  
 K: 2.92 mm (4)  
 F: F-Type (5)

Connector Location (1)  
 F = Front  
 R = Rear  
 T = Front - Rear

Example: 8331-M3-09-TS

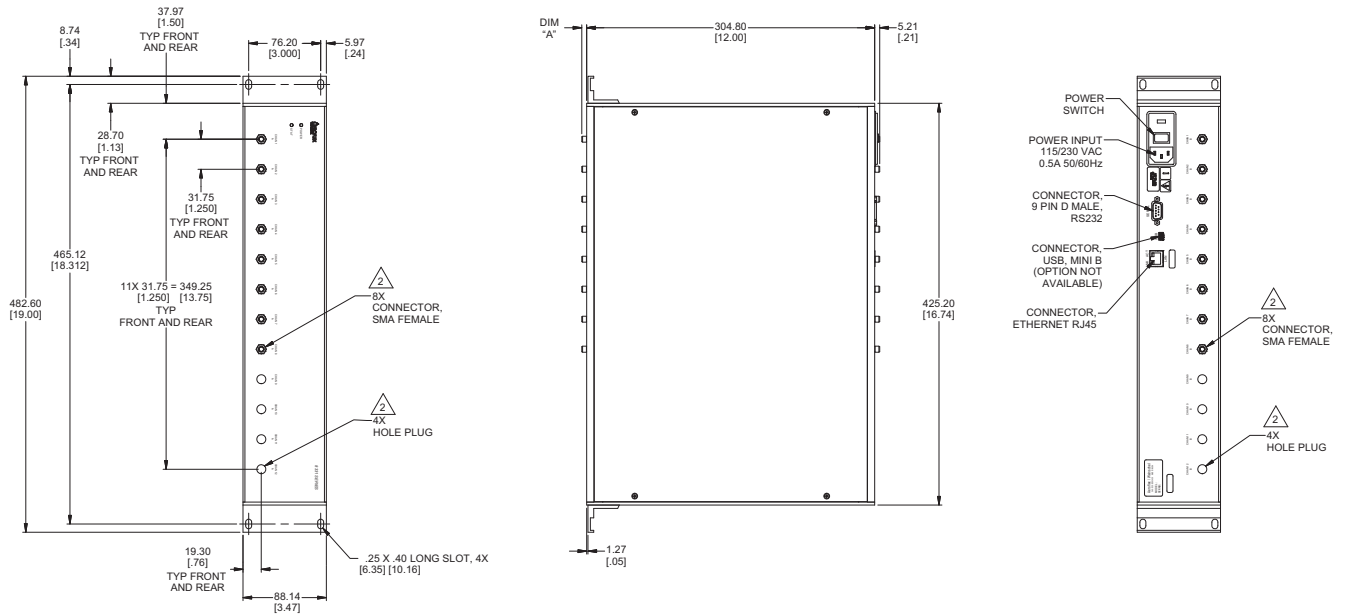
1. Up to 6 Channels for option F & R (Front & Rear)  
Up to 10 Channels for option C & D (150T & 152T Series)  
Up to 5 Channels for option C7 & D5
2. Not available for option D, E & F (152T, 156 & 3456 Series)
3. Not available for oprion E & F (156 & 3456 Series)
4. Only for option E (156 Series)
5. Only for option F (3456 Series)

Electro-mechanical								
Frequency Range	Attenuator Designation	Attenuator Model	Range (dB)	Step Size (dB)	Insertion Loss (maximum)	VSWR (maximum)	<input checked="" type="checkbox"/> RoHs	
DC-3 GHz	A	1	3205-1E	70	10	3.75 dB	1.4	
		2	3205-2E	55	5	3.75 dB	1.4	
		3	3205-3E	1.5	0.1	3.75 dB	1.4	
		4	3201-1E	31	1	4.00 dB	1.4	
		5	3206-1E	63	1	4.25 dB	1.4	
		6	3200-1E	127	1	5.25 dB	1.4	
		7	3200-2E	63.75	0.25	5.25 dB	1.4	
		8	3209-1E	64.5	0.1	6.00 dB	1.4	
DC-6 GHz	B	1	3404-15	15	1	3.50 dB	1.55	
		2	3404-55	55	5	3.50 dB	1.55	
		3	3404-70	70	10	3.50 dB	1.55	
		4	3406-55	55	1	4.50 dB	1.55	
		5	3408-55.75	55.75	0.25	6.00 dB	1.55	
		6	3408-103	103	1	6.00 dB	1.55	
		7	3409-127	127	1	6.50 dB	1.55	
DC-18 GHz	C	1	150T-70	70	10	3.25 dB	1.75	✓
		2	150T-15	15	1	3.50 dB	1.95	✓
		3	150T-75	75	5	3.50 dB	1.95	✓
		4	150T-110	110	10	3.50 dB	1.95	✓
		5	150T-31	31	1	3.75 dB	1.95	✓
		6	150T-62	62	2	3.75 dB	1.95	✓
		7	150T-15 & 150T-110	125	1	5.50 dB	1.95	✓
DC-26.5 GHz	D	1	152AT-70	70	10	4.75 dB	1.95	✓
		2	152T-15	15	1	5.00 dB	1.95	✓
		3	152T-75	75	5	5.00 dB	1.95	✓
		4	152T-90	90	10	5.00 dB	1.95	✓
		5	152T-90 & 152T-15	105	1	8.00 dB	1.95	✓
DC-40 GHz <i>New</i>	E	1	156-11	11	1	5.00 dB	2.00	✓
		2	156-90	90	10	5.00 dB	2.00	✓
		3	156-11 & 156-90	101	1	7.00 dB	2.00	✓
DC-3 GHz (75 Ω) <i>New</i>	F	1	3456-63	63	1	4.50 dB	1.60	✓
Solid State								
0.8 to 2.5/3 GHz	J	1	4226-63	63	1	4.75 dB	1.6	
		2	4228-63.75	63.75	0.25	6.00 dB	1.6	
		3	4228-103	103	1	6.00 dB	1.6	
0.01 to 2.5 GHz	K	1	4238-63.75	63.75	0.25	10.00 dB	1.75	
		2	4238-103	103	1	10.00 dB	1.75	
0.01 to 2.5 GHz	L	1	4246-63	63	1	11.00 dB	2.0	
		2	4248-63.75	63.75	0.25	14.00 dB	2.0	
		3	4248-103	103	1	14.00 dB	2.0	
0.2 to 6 GHz	M	1	4205-31.5	31.5	0.5	4.00 dB	1.8	✓
		2	4205-63.5	63.5	0.5	6.00 dB	1.8	✓
		3	4205-95.5	95.5	0.5	8.50 dB	2.0	✓

**RoHs** compliance dependent on attenuator installed. Some attenuators are NOT compliant.

# Programmable Attenuators

## Physical Dimensions



**NOTE:**

1. All dimensions are given in mm (inches).
2. Connectors and hole plugs are installed as required and determined by number of channel in unit. 8 channel unit shown
3. Connector location (Front/Rear) may vary depending on Model ordered.