

# Programmable Attenuators & Attenuator/Switch Controllers



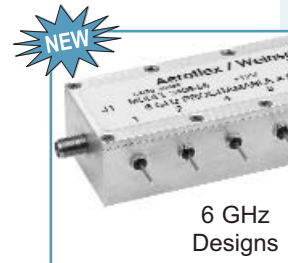
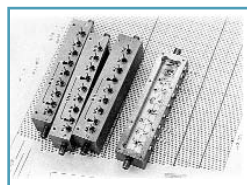
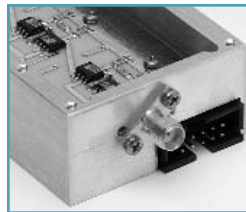
- /// Widest Selection of Attenuation Ranges & Steps Sizes
- /// **Express** shipment available on select models.
- /// Built-In TTL/CMOS Interface Driver Circuitry available.
- /// High Quality Construction & Connectors
- /// Special Configurations Available Upon Request
  - Custom Cell/Step Size Configurations
  - Higher Frequencies

## General Information




In this section of the catalog, each Programmable Attenuator is outlined utilizing individual data sheets containing product features, specifications, and outline drawings. These data sheets are preceded by a quick reference guide to help you select the Programmable Attenuator(s) that fits your needs. The page number for each Programmable Attenuator data sheet is given in the quick reference guide.

This section includes all available accessories for the Aeroflex / Weinschel programmable attenuators such as our Model 8210A Attenuator / Switch Controller, product specific driver boards, and our programmable attenuators with our built-in microprocessor-based drivers. Also Included in this section are Aeroflex / Weinschel's wide variety of programmable attenuator units which includes the 8310, 8311 and 8312 series. Other subsystem solutions can be located in the Subsystem and Accessories section (pg 135).




**NOTE:** **EXPRESS** Shipment available via [www.argosysales.com](http://www.argosysales.com) or 800-542-4457. Check with distributor for current product stocking quantities.



## Relay Switched Programmable Attenuators, Basic Models . . . DC-6 GHz

Model Number	Frequency Range (GHz)	Attenuation Range (dB)	Step Size (dB)	Insertion Loss, Max. (dB)	Maximum SWR	Connector Type	Average Power (Watts)	Peak Power (Watts)	Page No.							
★ 3200-1	dc-2.0	0-127	1	4.75	1.25-1.35*	SMA	1	50	89							
★ 3200-2		0-63.75	0.25	4.75	1.25-1.35*											
★ 3201-1		0-31	1	3.75	1.25											
★ 3201-2		0-120	10	3.75	1.25											
3205-1		0-70	10	3.30	1.25											
3205-2		0-55	5	3.30	1.25											
3205-3		0-1.5	0.1	3.30	1.25											
★ 3206-1		0-63	1	4.00	1.25											
3209-1		0-64.5	0.1	6.70	1.35											
★ 3200-1E		dc-3.0	0-127	1	4.90						1.25-1.40*	SMA	1	50	89	
3200-2E			0-63.75	0.25	4.90						1.25-1.40*					
3201-1E			0-31	1	3.40						1.25-1.40*					
3205-3E			0-1.5	0.1	3.40						1.25-1.40*					
3206-1E			0-63	1	3.70						1.25-1.35*					
3209-1E			0-64.5	0.1	5.50						1.35-1.45*					
3250-63 (75 Ω)	dc-1.0	0-63	1	4.75	1.20-1.30*	BNC	1	50	98							
3406-55 3408-55.75 3408-103	dc-6.0	0-55 0-55.75 0-103	1 0.25 1	3.80 5.00	130	SMA	1	50	102							

## Relay Switched Programmable Attenuators, with built-in Microprocessor-Base Driver . . . DC-3 GHz (For use with Aeroflex / Weinschel 8210A Controller)

Model Number	Frequency Range (GHz)	Attenuation Range (dB)	Step Size (dB)	Insertion Loss, Max. (dB)	Maximum SWR	Connector Type	Average Power (Watts)	Peak Power (Watts)	Page No.							
3200T-1	dc-2.0	0-127	1	4.75	1.25-1.35*	SMA	1	50	95							
3200T-2		0-63.75	0.25	4.75	1.25-1.35*											
3201T-1		0-31	1	3.75	1.25											
3201T-2		0-120	10	3.75	1.25											
3201T-4		0-1.2	0.1	3.30	1.25											
3205T-1		0-70	10	3.30	1.25											
3205T-2		0-55	5	3.30	1.25											
3205T-3		0-1.5	0.1	3.30	1.25											
3206T-1		0-63	1	4.00	1.25											
3209T-1		0-64.5	0.1	6.70	1.35											
3200T-1E		dc-3.0	0-127	1	4.90						1.20-1.40*	SMA	1	50	95	
3200T-2E			0-63.75	0.25	4.90						1.20-1.40*					
3201T-1E			0-31	1	3.40						1.20-1.40*					
3205T-3E			0-1.5	0.1	3.40						1.20-1.40*					
3206T-1E			0-63	1	3.70						1.25-1.35*					
3209T-1E	0-64.5		0.1	5.50	1.35-1.45*											
3250T-63 (75 Ω)	dc-1.0	0-63	1	4.75	1.20-1.30*	BNC	1	50	98							
3406T-55 3408T-55.75 3408T-103 <i>(New)</i>	dc-6.0	0-55 0-55.75 0-103	1 0.25 1	3.80 5.00	130	SMA	1	50	106							

\* VARIES WITH FREQUENCY.

★ EXPRESS Shipment available via [www.argosysales.com](http://www.argosysales.com) or 800-542-4457.  
Check with Distributor for other available models.

# Programmable Attenuators



## Relay Switched Programmable Attenuators, with built-in Microprocessor-Based Driver . . . dc - 26.5 GHz (For use with Aeroflex / Weinschel 8210A Controller)

Model Number	Frequency Range (GHz)	Attenuation Range (dB)	Step Size (dB)	Insertion Loss, Max. (dB)	Maximum SWR	Connector Type	Average Power (Watts)	Peak Power (Watts)	Page No.
150T-11	dc-18.0	0-11	1	2.2	1.50-1.90*	3.5mm	1	100	108
150T-15		0-15	1	2.2	1.50-1.90*				
150T-31		0-31	1	2.6	1.50-1.90*				
150T-62		0-62	2	2.6	1.50-1.90*				
150T-70		0-70	10	2.6	1.35-1.70*				
150T-75		0-75	5	2.2	1.50-1.90*				
150T-110		0-110	10	2.2	1.50-1.90*				
151T-11	dc-4.0	0-11	1	0.9	1.50	3.5mm	1	100	108
151T-15		0-15	1	0.9	1.50				
151T-31		0-31	1	0.9	1.50				
151T-62		0-62	2	1.1	1.50				
151T-70		0-70	10	0.7	1.35				
151T-75		0-75	5	0.9	1.50				
151T-110		0-110	10	0.9	1.50				
152T-55	dc-26.5	0-55	5	2.98	1.40-1.90*	3.5mm	1	100	108
152T-70		0-70	10	2.98	1.40-1.90*				
152AT-70		0-70	10	2.98	1.40-1.90*				
152T-75		0-75	5	2.98	1.40-1.90*				
152T-75		0-75	5	2.98	1.40-1.90*				
152T-90		0-90	10	2.98	1.40-1.90*				







## Relay Switched Programmable Attenuators, Basic Models . . . dc - 26.5 GHz

Model Number	Frequency Range (GHz)	Attenuation Range (dB)	Step Size (dB)	Insertion Loss, Max. (dB)	Maximum SWR	Connector Type	Average Power (Watts)	Peak Power (Watts)	Page No.
150-11	dc-18.0	0-11	1	2.2	1.50-1.90*	3.5mm	1	100	112
150-15		0-15	1	2.2	1.50-1.90*				
150-31		0-31	1	2.6	1.50-1.90*				
150-70		0-70	10	2.6	1.35-1.70*				
150-75		0-75	5	2.2	1.50-1.90*				
150-110		0-110	10	2.2	1.50-1.90*				
151-11	dc-4.0	0-11	1	0.9	1.50	3.5mm	1	100	112
152-90	dc-26.5	0-90	10	2.98	1.40-1.80*	3.5mm	1	100	112
153-70 (New)	dc-40.0	0-70	10	3.00	1.30-2.10*	2.92mm	1	100	
153-110		0-110	10	4.00					



\* VARIES WITH FREQUENCY.

**SOLID-STATE PROGRAMMABLES . . . to 3 GHz**

Model Number	Frequency Range (GHz)	Attenuation Range (dB)	Step Size (dB)	Insertion Loss, Max. (dB)	Maximum SWR	Average Power	Connector Type	Page No.	
4216-63 4218-63.75 4218-127	0.8-2.3	0-63 0-63.75 0-127	1 0.25 1	3.40 4.90 4.90	150 150 150	+28 dBm	SMA	117	
4226-63 4228-63.75 4228-103	0.8-3.0 0.8-2.5 0.8-3.0	0-63 0-63.75 0-103	1 0.25 1	3.75 4.50 5.50	1.50 1.50 1.50	+28 dBm	SMA	119	
4238-63.75 4238-103		0-63.75 103	0.25 1	9.00 9.00	1.60	+30 dBm	SMA	121	
4246-63 4248-63.75 4248-103	10 MHz-2.5	0-63 0-63.75 103/1	1 0.25	10.00 13.00 13.00	2.00	+36 dBm	SMA	123	

**ATTENUATOR UNITS & CONTROLLERS. . . dc to 26.5 GHz, 100 Watts**



**Programmable/Switch Controllers:**  
(pg 132-134)

The Model 8210A Attenuator / Switch Controller provides a flexible, low cost solution for the control and operation of electromechanical switches and programmable step attenuators using standard communication interfaces. The 8210A represents a new concept in device control applications for bench test and subsystem designs.

- /// Designed to interface with Aeroflex / Weinschel's line of programmable attenuators (3200T & 150T) and other electromechanical devices.
- /// Simplifies your bench test setups and subsystem design.
- /// Available in two standard communication interfaces:
  - Model 8210A-1: GPIB/IEEE-488 (HS-488 ready)
  - Model 8210A-2: RS-232, RS-422, RS-485



Each model contains similar capabilities and provides switch-selectable parameters to tailor the interface's operation.

**100 W Hot-Switchable High Power Attenuator Unit:**

(pages 129-131)

- /// Available in 0-15 dB or 0-31 dB Configurations
- /// DC to 13 GHz Operation
- /// Power Handling up to 100 Watts average
- /// High Accuracy & repeatability
- /// IEEE-488 & Standard Serial Interfaces
- /// Relative vs. Nominal attenuation step function.
- /// Bus Controlled Programmable Attenuator Units



**Programmable Attenuator Units for Rack or Bench Use:**

(Pages 125-128)

Aeroflex / Weinschel's 8310 & 8311 Series Programmable Attenuator Units represent Aeroflex / Weinschel's newest concept in programmable attenuation for bench test and subsystem applications.



Standard 8310 Series designs house and control various Aeroflex / Weinschel Programmable Attenuator Models (3200T, 150T, and 4200 Series via front panel controls or standard communications interfaces including GPIB (IEEE-488) and RS-232/RS-422/RS485. The standard units combine the features of the Aeroflex / Weinschel 8210A Device Controller with a front panel user interface to form a flexible, easy to use solution.

Most 8310 Series are single channel configurations where RF signal is routed through either the front or rear mounted Ports A & B but can be configured for up to four channels of attenuation, RF switching, or other functions and other features such as:

- /// Multi-Channel attenuation paths (up to 4 input/ outputs).
- /// Relative vs. Nominal attenuation step function.
- /// Wide choice of Frequency & Attenuation Ranges.
  - dc to 1, 2, 3, 18 & 26.5 GHz
  - up to 127 dB
  - Solid-State (GaAs FET & PIN)
  - Relay Switched
  - 50 & 75 Ω Configurations
- /// High Accuracy & Repeatability.
- /// Easily mounted into racks or cabinets designed per EIA RS-310 or MIL-STD-189.

