

### AVX-AT SERIES ATTENUATORS

The AVX-AT series of fixed attenuators is designed for use with both general-purpose and Avtech sub-nanosecond pulse generators, to reduce the output pulse amplitude and to improve transmission-line back-matching. The AVX-ATA series features SMA connectors and 150 ps rise times, and is available in 3, 6, 10 and 20 dB versions. The AVX-ATB series features BNC connectors and 300 ps rise times, and is available in 3, 6, 10 and 20 dB versions. For all models, one of the connectors is male and one is female. When ordering, replace the suffix -N in the model number with the desired attenuation value (3, 6, 10 or 20).

Model:	AVX-ATA-N (N = 3, 6, 10 or 20)	AVX-ATB-N (N = 3, 6, 10 or 20)
Attenuation (dB):	3, 6, 10 or 20	
Rise time:	150 ps	300 ps
Connectors:	SMA (F), SMA (M)	BNC (F), BNC (M)
Max. input:	350 Volts	
Max. pulse width:	100 ns	
Max. average power:	0.5 Watts	
Bandwidth:	5 GHz	1 GHz
Dimensions: (H x W x D)	23 mm x 28 mm x 37 mm (0.9" x 1.1" x 1.45"), Style C	

Higher power and higher bandwidth attenuators are available from Midwest Microwave ([www.midwestmicrowave.com](http://www.midwestmicrowave.com)).

### HIGH VOLTAGE ATTENUATORS

The AVX-CT series of fixed attenuators is designed for use with high-voltage laboratory pulse generators (500 and 1000 Volts), to reduce the output pulse amplitude and to improve pulse generator back-matching. 6, 10 and 20 dB units are available, with 2 or 5 ns rise times. All models have female BNC connectors. The units have an average power rating of 4 or 8 Watts. When ordering, replace the suffix -N in the model number by the desired attenuation value (6, 10 or 20 dB).

Model:	AVX-CTA-N (N = 6, 10 or 20 dB)	AVX-CTB-N (N = 6, 10 or 20)
Attenuation (dB):	6, 10 or 20	
Rise time:	≤ 2 ns	≤ 5 ns
Connectors:	BNC (Female / Female)	
Maximum voltage:	500 Volts	1000 Volts
Max. pulse width:	100 us	100 us
Max. average power:	4 Watts	8 Watts
Dimensions: (H x W x D)	36 x 28 x 59 mm (1.4" x 1.1" x 2.3") Avtech Style B	42 x 76 x 67 mm (1.7" x 3.0" x 2.6") Avtech Style A2

Contact Avtech with your special requirement!  
[info@avtechpulse.com](mailto:info@avtechpulse.com)

### 50 WATT SERIES RESISTORS

Many Avtech pulser generators require a 50Ω load impedance. When driving a laser diode, the resistance must be added in series with the diode. Most of the pulse generator output power will be dissipated in the series resistance, rather than the diode, so a high power rating is sometimes required. The fan-cooled AVX-RL3 series is provided for that purpose.

The AVX-RL3 is available in resistances of 10Ω and 50Ω.

The 50Ω model has a single SMA input connector. The output signal and a ground connection are provided on two solder terminals, spaced approximately 1.5 cm apart.

The 10Ω model has five SMA input connectors wired in parallel. The output signal and a ground connection are provided on a section of microstrip board, with user-accessible solder pad areas.

Different connector arrangements can be provided upon request. A DB-9 female connector provides power to the internal fans (+24V to pins 6 and 7, ground to pins 8 and 9) and provides access to a thermistor (pins 1 and 2) thermally bonded to the resistance.

The AVX-RL3-50 is included with the AVO-6HF-B pulse generator (<http://www.avtechpulse.com/laser/avo-6hf>) as a standard accessory. The AVX-RL3-10 is included with the AVO-6HZ-B (<http://www.avtechpulse.com/laser/avo-6hz>).

See <http://www.avtechpulse.com/accessories> for higher-power loads, up to 4 kilowatts!



Model:	AVX-RL3-10	AVX-RL3-50
Series resistance:	10Ω ± 5%	50Ω ± 5%
Connectors: Input(s):	SMA female (5)	SMA female (1)
Fan / thermistor:	DB-9 female	
Output, ground:	Microstrip PCB	solder terminals
Max. power dissipation:	50 Watts (fan must be operational)	
Maximum voltage:	500V <sup>1</sup>	
Rise time (10%-90%):	< 15 ns	< 3 ns <sup>2</sup>
Parasitic inductance:	70 nH <sup>3</sup>	
Dimensions (H×W×D):	4.1"×7.4"×6.3", 104×187×159 mm	

- The internal resistance can handle 500 V. However, the standard output connectors are exposed solder terminals, and operator safety may be compromised if these exposed terminals are operated at voltages greater than 50 V. The user may add additional insulation to protect the operator, depending of the nature of the connection required. Alternatively, Avtech can provide different output connectors upon request (BNC, safety banana, etc). Alternative connectors may increase the parasitic inductance. Contact Avtech ([info@avtechpulse.com](mailto:info@avtechpulse.com)) with your special requirement.
- Measured by applying a 200 ps rise time pulse to the input and observing the output current pulse using a 711S current probe.
- Estimated from the observed rise time using  $t_{RISE\ 10\%-90\%} = 2.2 L / R$ .