

Manual Step, Ruggedized SMA Connectors

Models: 9003, 9004, 9009, 9010, 9011

DC to 18 GHz, 2 Watt



Features

- **Broadband:** choice of frequency ranges, DC-4 and DC-18 GHz
- **Wide Choice of Attenuation Ranges:** 5 standard attenuation ranges available, see *Standard Incremental Attenuation Range*
- **Environmental:** designed to meet most environmental requirements of MIL-A-24215 (vibration, shock, relative humidity to 95%, and altitude)
- **In-line Configuration:** passivated stainless steel SMA connector is set parallel with the control shaft (except units with right-angle connector) to reduce volume for applications where space is critical; all models are bidirectional
- **Precise Incremental Attenuation Accuracy:** model 9000 series has a flat frequency response and small deviation from nominal attenuation at all settings (e.g., the deviation is only +2.5 dB at 99 dB setting at 18 GHz)
- **Excellent Repeatability and Long Switch Life**
- **Custom Configurations Available Upon Request**
- **Highly Accurate Detent Stepping:** direct drive of attenuator drums eliminates gears and provides for excellent repeatability
- **Safety Mechanical Stop:** a mechanical stop between maximum and 0 attenuation positions on all models except 0-9 dB unit is provided to prevent large power changes at attenuator output from damaging sensitive equipment

Description

The Model 9000 series Step Attenuators are broadband miniature step attenuators that provide excellent performance characteristics suitable for use in high-reliability 50 ohm systems and applications requiring extra-small components to precisely control signal levels. The Model 9000 series can be used as input or output attenuators in signal sources, receivers, field strength meters, spectrum analyzers, etc.

The SMA connector furnished on all models is available in either standard or right-angle configuration. The sex of the front and rear connector is optional (refer to connector specification for specific combinations available). A knob(s), marked appropriately, is supplied with each unit.

Specifications

Nominal Impedance: 50 Ω

Frequency Range: model no. prefix to designate range:

DC to 4.0 GHz (AC) – 9009 & 9010 only

DC to 18.0 GHz (AF) – all models

Standard Incremental Attenuation Range:

Model 9009:	0 to 9 dB in 1 dB steps
Model 9003:	0 to 69 dB in 1 dB steps
Model 9004:	0 to 99 dB in 1 dB steps
Model 9010:	0 to 60 dB in 10 dB steps
Model 9011:	0 to 90 dB in 10 dB steps

Maximum SWR		
Freq. Range (GHz)	9009, 9010, 9011	9003, 9004
DC – 4	1.25	1.35
DC – 18	1.60	1.75

Power Rating: 2 watts average to 25°C ambient temperature, derated linearly to 1 watt @ 54°C. 200 watts peak (5 μ sec pulse width; 0.5% duty cycle)

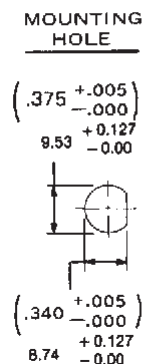
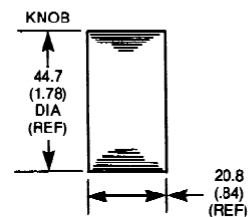
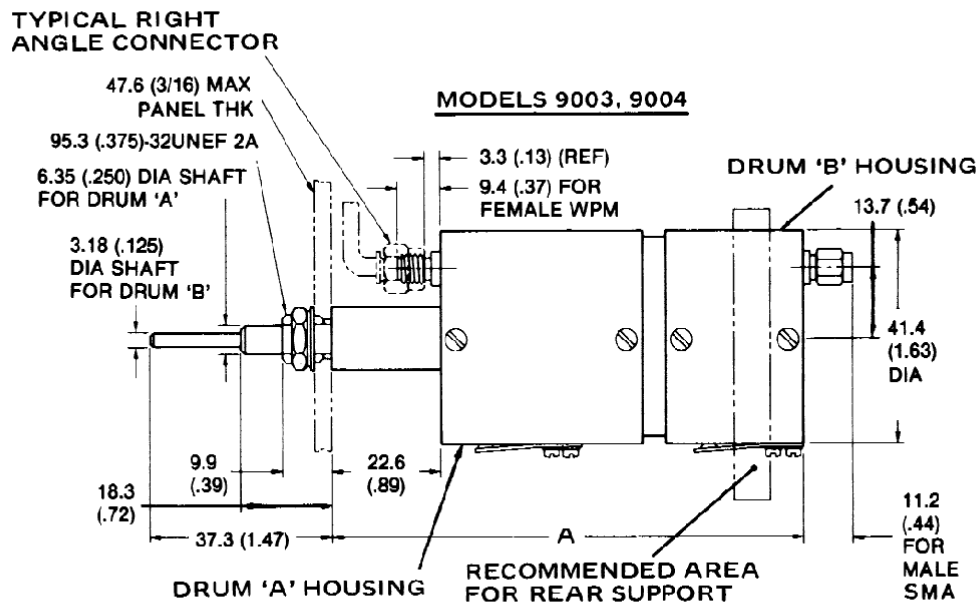
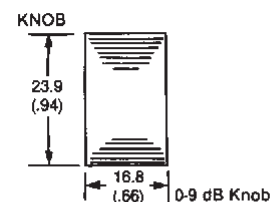
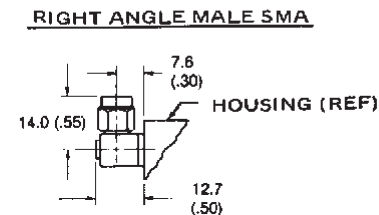
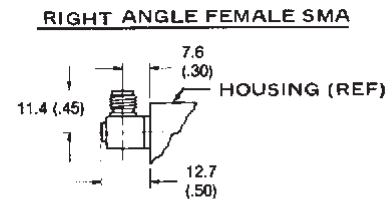
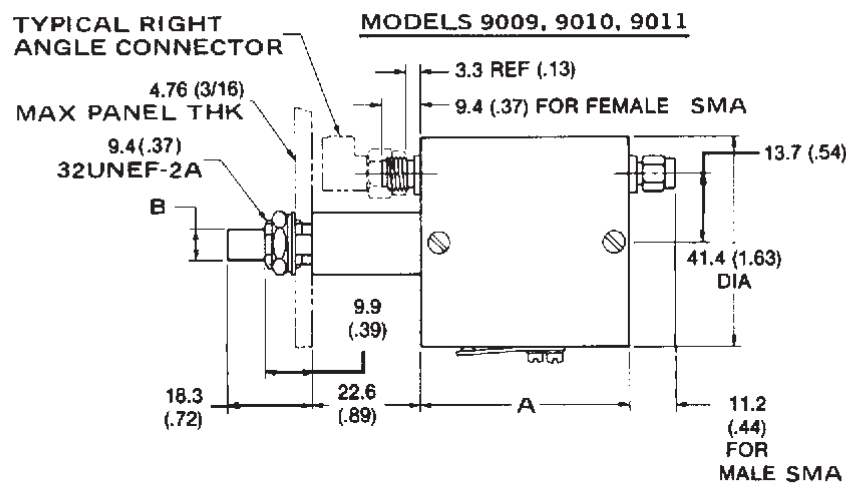
Power Coefficient: < 0.005 dBm/dB/watt

Temperature Coefficient: < 0.0004 dBm/dB/°C

Temperature Range:

Operating:	0 to +54°C
Non- Operating :	-54 to +54°C

Physical Dimensions



Model No.	DIM A	DIM B
9003	96.3 (3.79)	-
9004	106.4 (4.19)	-
9009	28.7 (1.13)	3.25 (0.125)
9010	41.4 (1.63)	6.35 (0.250)
9010	51.6 (2.03)	6.35 (0.250)

**Dimensions are given in mm (inches) and are max. unless otherwise specified.