Models 115A,117A,119A Manual Step Attenuators

dc to 18.0 GHz 2 Watt

Choice of Type N or SMA Connectors

Features

- **Safety Mechanical Stop** - A mechanical stop between maximum and 0 attenuation positions on all models prevents damage to the mechanical drive as well as preventing large power changes that could cause damage to sensitive equipment.
- **Choice of Attenuation Ranges** - Five standard attenuation ranges are available: 0-9 dB, 0-69 dB, and 0-99 dB in 1 dB steps.
- **Broadband** - All models are available in a choice of 2 frequency ranges: dc-4 and dc-18 GHz.
- **Right-Angle Drive** - The center conductor of the connector is perpendicular to the control shaft, offering greater flexibility of applications: panel mounting or bench setup. All models are bidirectional.
- **Custom Configurations Available Upon Request.**
- **Low Deviation from Nominal Value** - These Mini Step Attenuators have flat frequency response over specified bands and excellent attenuation accuracy. Deviation from nominal value is low at all settings.
- **Excellent Repeatability and Long Life Switch** - Repeatability is better than 0.05 dB to 18.0 GHz for over 1,000,000 switchings of the drum.

Description

The Aeroflex / Weinschel Models 115A, 117A and 119A are a series of broadband, step attenuators in a right-angle drive configuration, where the center conductor of the connector is perpendicular to the control shaft. They feature excellent performance characteristics suitable for use in high reliabil-ity 50 ohm systems and applications requiring extra-small components for the precision control of power in discrete steps. They can be used either as input or output attenua-tors in signal sources, receivers, field strength meters, spectrum analyzers, etc.

Specifications

NOMINAL IMPEDANCE: 50 Ω

FREQUENCY RANGE (add Model No. Prefix to Designate Range):

All Models: dc to 4.0 GHz (AC)
dc to 18.0 GHz (AF)

STANDARD INCREMENTAL ATTENUATION RANGE:

Model 115A: 0 to 9 dB in 1 dB steps
Model 117A: 0 to 69 dB in 1 dB steps
Model 119A: 0 to 99 dB in 1 dB steps

MAXIMUM SWR (Models 117A & 119A):

Frequency Range (GHz)	117A & 119A	115A
dc - 4	1.35	1.25
4 - 12.4	1.50	1.60
12.4 - 18.0	1.70	1.60

POWER RATING: 2 watts **average** to 25°C ambient temperature, derated linearly to 1 watt @ 54°C. 200 watts **peak** (5 µsec pulse width; 0.5% duty cycle)

POWER COEFFICIENT: < 0.005/dB/dB/watt

TEMPERATURE COEFFICIENT: < 0.0004/dB/dB/°C

TEMPERATURE RANGE: Operating: 0°C to +54°C
Nonoperating: -54°C to +54°C

INCREMENTAL PHASE SHIFT: ~0.5° per dB x f(GHz)

REPEATABILITY: Better than 0.05 dB across frequency band for switch life.

SWITCH LIFE: Over 1,000,000 steps

INDEXING: 36°

MAXIMUM INSERTION LOSS (dB):

Model Number	CONN Type	Frequency Range (GHz) dc-4	dc-18
115A	N	0.3	0.7
	SMA	0.3	1.0
117A	N	0.5	1.2
	SMA	0.6	1.5
119A	N	0.5	1.2
	SMA	0.6	1.5

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Revision Date: 08/03/2016

Variable Attenuators

Specifications (Con't):

TEST DATA: Insertion Loss data is supplied as follows. Other test data can be supplied at additional cost.

dc to 4 GHz: At 50 MHz and 4 GHz
dc to 18 GHz: At 50 MHz, 4, 8, 12 and 18 GHz

RELATIVE HUMIDITY: 95%

ALTITUDE: to 10,000 ft.

SHOCK (non-operating): 8 g's, 100 ms, 1/2 sine

DRUM CONFIGURATIONS:

Single Drum: 115A
Dual Drum: 117A, 119A

VIBRATION (non-operating):

5 to 8 cps, 0.20 inch double amplitude
8 to 15 cps, 0.10 inch double amplitude
15 to 55 cps, 0.36 inch double amplitude
Supported rigidly front and back

SHAFT ROTATION: Clockwise for increasing attenuation

CONSTRUCTION:

Materials:	Housing: aluminum alloy, clear irridite, MIL-C-5541.
Dust Cover:	Painted aluminum alloy
Drum:	Aluminum alloy
Shaft:	Passivated stainless steel
Connector:	Stainless steel and beryllium copper contacts.

CONNECTOR: SMA and Type N connectors per MIL-STD-348 interface dimensions - mate nondestructively with MIL-C-39012 connector. Connector sex is optional as follows:

Connector Options	Type/Description
1	SMA, Female
2	SMA, Male
3	Type N, Female
4	Type N, Male

WEIGHT:

115A	340 g (12 oz)
117A	760 g (27 oz)
119A	880 g (31 oz)

INCREMENTAL ATTENUATION ACCURACY (±dB):

Model Number	dB Range	Frequency Range (GHz) dc-4	dc-18
115A	1-9	0.3	0.5
117A	1-9	0.3	0.5
	10-19	0.7	1.0
	20-29	0.9	1.2
	30-39	1.0	1.4
	40-49	1.1	1.5
	50-59	1.2	1.7
	60-69	1.3	1.9
119A	1-9	0.3	0.5
	10-19	0.7	1.0
	20-29	0.9	1.2
	30-39	1.0	1.4
	40-49	1.1	1.5
	50-59	1.2	1.7
	60-69	1.3	1.9
	70-79	1.4	2.1
	80-89	1.5	2.3
	90-99	1.6	2.5

MODEL NUMBER DESCRIPTION:

Example:

AC115A - XX - XX

- AC115A: Frequency Range (GHz) / Basic Model Number
- XX: Maximum Attenuation Value (dB)
- XX: Connector Options*
  1st digit is J1 side (left)
  2nd digit is J2 side (right)

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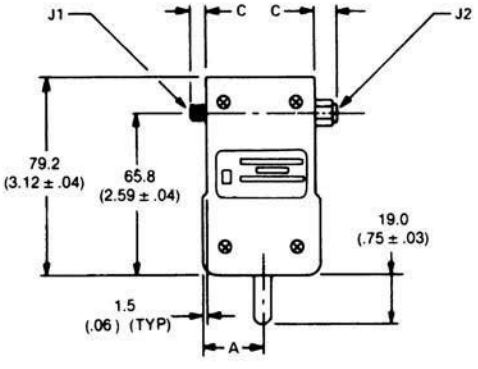
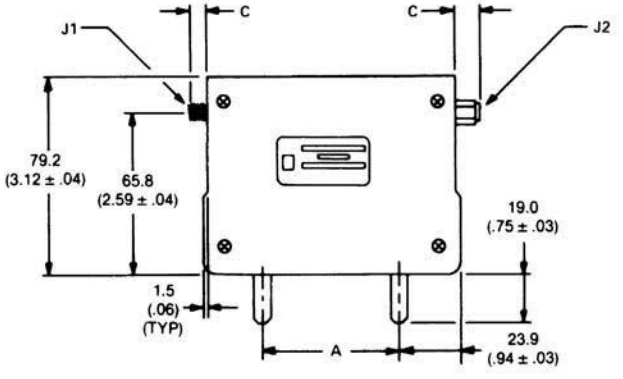
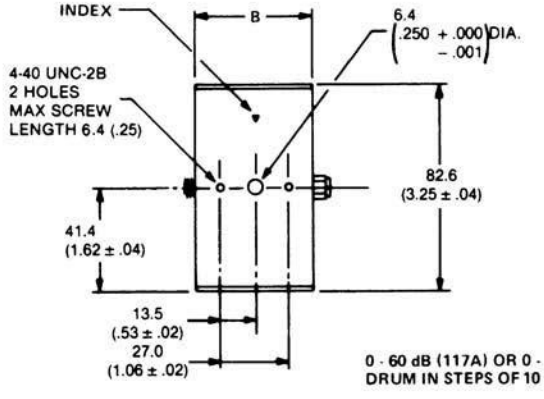
PHYSICAL DIMENSIONS:

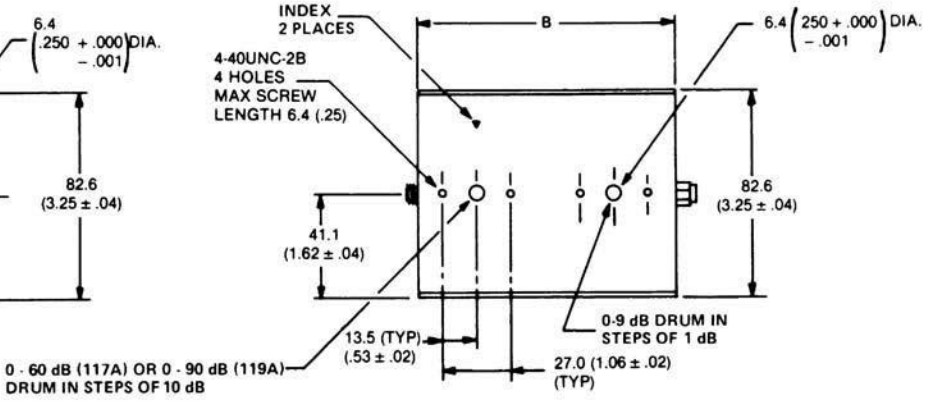
MODEL 115A



MODELS 117A, 119A







Model No.	DIM A	DIM B
119A	58.7 (2.31)	111.3 (4.38)
117A	54.0 (2.11)	101.1 (3.98)
115A	23.9 (0.94)	47.5 (1.87)

CONN Type	DIM C
Type N, Male	20.6 (0.81)
Type N, Female	18.3 (0.72)
SMA, Male	9.4 (0.37)
SMA, Female	7.9 (0.31)

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

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