## Variable Attenuators



# Models 3003, 3006, 3007, 3010, & 3014 Models 3053 & 3054 Manual Step Attenuators

## dc to 2.5 GHz dc to 6.0 GHz 1 Watt

### Rugged SMA Connector



### **Features**

// New Models - Models 3053 & 3054 offer an extended frequency range to 6 GHz.

///	Available Express Models:	3003
		3010
		3053

3003-100	
3010-100	
3053-100	
3054-100	

Other models may be available for Express delivery.

- High Reliability Repeatability better than 0.1 dB over frequency range and life. Weinschel patented detent mechanism, tested to 1,000,000 operations at +75°C, operates dependably even down to -40°C.
- // Product Uniformity High volume fabrication techniques, including injection molding, stamping, broaching and thick film printing ensure a cost effective and uniform product.
- // Low Frequency Sensitivity Typically 0.1 to 0.2 dB up to 2.5 GHz.
- // Shock Resistant 100% spring contact system withstands mechanical and thermal shock and eliminates the need for epoxy or solder.
- // Wide Selection Wide choice of attenuation ranges and increments in standard stock models. Single and dual drum configurations available.
- // Knob Included Knobs for both single and dual drum models are included with every attenuator. Characters are screened on the face of the knob insert which is coated with a clear layer of epoxy for protection.

### **Special Configurations**

Some modifications to the basic configuration of the 3000 Series can be made during manufacturing. Examples of these special configurations are shafts having special lengths and ends; clockwise shaft rotation; modified mounting arrangements; and provisions for add-on items such as concentric potentiometer and ganged switches.

#### **Specifications**

operation					
NOMINAL IMPEDANCE: 50 Ω FREQUENCY RANGE: FREQUENCY RANGE:					
Models 3006, 3014	4: dc to 1.25 GHz				
,					
Models 3003, 3007	7, 3010. UC to 2.5 GHZ				
Models 3053, 3054	4: dc to 6.0 GHz				
INCREMENTAL ATTENUATION RANGE/STEPS:					
Model 3003:	0-70 dB in 10 dB steps				
Model 3006:	0-100 dB in 10 dB steps				
Model 3007:	0-10 dB in 1 dB steps				
Model 3010:	0-70 dB in 1 dB steps				
Model 3014:	0-110 dB in 1 dB steps				
Model 3053:	0-10 dB in 1 dB steps				
Model 3054:	0-70 dB in 1 dB steps				
<b>POWER COEFFICIENT:</b> < 0.006 dB/dB/watt					
TEMPERATURE COEFFICIENT: 0.0004 dB/dB/ °C					

**TEMPERATURE RANGE:** 

Operating: -40°C to +65°C Non-Operating: -54°C to +85°C

**POWER RATING:** 1 watts **average** @ 25°C ambient temperature, derated linearly to 0 watts @ 65°C. 100 watts **peak** (5  $\mu$ sec pulse width; 0.5 % duty cycle).

#### ATTENUATION ACCURACY:

Model	Accuracy	
3003	<u>+</u> 0.3 dB or 1% up to 60 dB <u>+</u> 2% to 70 dB	
3006	<u>+</u> 0.3 dB or 1% up to 60 dB <u>+</u> 2% to 100 dB	
3007, 3053	<u>+</u> 0.3 dB	
3010	<u>+</u> 0.3 dB up to 10 dB <u>+</u> 0.3 dB or 1.5% to 60 dB <u>+</u> 2 % to 70 dB	
3014	<u>+</u> 0.3 dB up to 10 dB <u>+</u> 0.3 dB or 1.5% to 60 dB <u>+</u> 3% to 110 dB	
3054	<u>+</u> 0.3 dB or 2% (dc to 3 GHz) <u>+</u> 0.3 dB or 3.5% (3 to 6 GHz)	

**CONNECTOR:** SMA female connector per MIL-STD-348 interface dimensions - mate nondestructively with MIL-C-39012 connector.

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### Specifications-Con't

SHAFT ROTATION: counter clockwise for increasing attenuation

STEP ANGLE: 32.7°

#### **DRUM CONFIGURATIONS:**

Single Drum: Dual Drum:

3003, 3006, 3007, 3053 3010, 3014, 3054

#### MAXIMUM SWR & ZERO INSERTION LOSS:

			-
Model	Frequency (GHz)	SWR	Loss (dB)
3003	dc - 2.5	1.20	< 0.3
3006	dc - 1.25	1.20	< 0.2
3007	dc - 2.5	1.30	< 0.3
3010	dc - 2.5	1.35	< 0.7
3014	dc - 1.25	1.30	< 0.5
3053	dc - 3.0	1.30	< 0.3
	3.0 - 6.0	1.40	< 0.7
3054	dc - 3.0	1.30	< 0.8
	3.0 - 6.0	1.55	< 1.3

**PHYSICAL DIMENSIONS:** 

#### SINGLE DRUM

SWITCHING LIFE: 1,000,000 steps

**REPEATABILITY:** <u>+</u>0.1 dB over frequency range and rated life

ROTATION STOPS: Supplied on 10 dB step drums (not supplied on 1 dB drums).

**INCREMENTAL PHASE SHIFT:** ~0.25° per dB x f(GHz)

CONSTRUCTION: Shafting and external hardware and connector shells: CRES Type 303, per ASTM-A582 passivated per QQ-P-35. Housing: AL ALLOY Gold Flash. Knob is included with each unit.

TEST DATA: Test data is available at additional cost.

Single drum:	Net 125 g (4.4 oz)
Dual drum:	Net 201 g (9.9 oz)

#### MODEL NUMBER DESCRIPTION:

Number

Example:

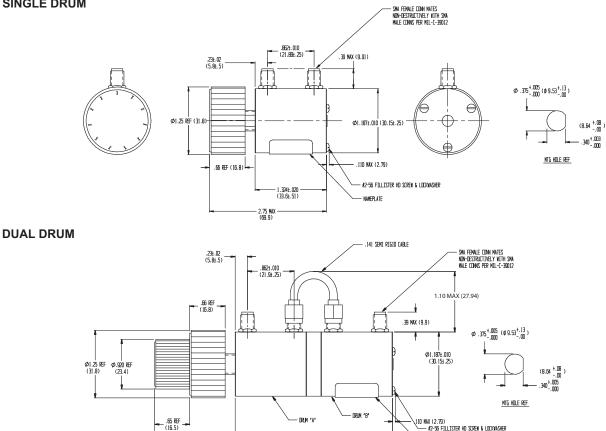
WEIGHT:

<u>3010</u> - <u>100</u> Basic Model

#2-56 FILLISTER HD SCREW & LOCKWASHER

NAMEPLATE

Additional Options no longer available. Add -100 Only!



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2.90 MAX (73.7)

4.50 MAX (114.3)