



## Model 3003, 3006, 3007, 3010, & 3014 Manual Step Attenuators

dc to 2.5 GHz  
1 Watt

### *Rugged SMA Connector*

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### **Features**

- /// **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 potentiometers and ganged switches.

### **Options**

Weinschel offers Model 3000 Step Attenuators with three low-cost options. Add option number to the basic model number when ordering.

**Option-100:** Indicates knob(s) supplied.

**Option-103: PANEL SEAL** - For single-drum models only, sealing the attenuator to a panel is achieved by use of an "O" ring around the control shaft and seal screws to mount the unit to the panel. Both the "O" ring and seal screws are provided with this option. (A dual-drum panel seal option is not available.)

**Option-120: INDICATOR SWITCH** - A single-pole, rotary switch ganged mechanically with the attenuator drum is available to provide a closure for indicating drum position (value of attenuation). The switch has a life of 1,000,000 operations and is suitable for use in controlling digital-logic circuits.

**Option-123: INDICATOR SWITCH/PANEL SEAL** - This option includes both the indicator switch and panel seal options listed above. Only available on single drum units.



## Specifications

**NOMINAL IMPEDANCE:** 50  $\Omega$

**FREQUENCY RANGE:** FREQUENCY RANGE:

Models 3006, 3014: dc to 1.25 GHz

Models 3003, 3007, 3010: dc to 2.5 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

**POWER COEFFICIENT:** < 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	$\pm 0.3$ dB or 1% up to 60 dB $\pm 2\%$ to 70 dB
3006	$\pm 0.3$ dB or 1% up to 60 dB $\pm 2\%$ to 100 dB
3007	$\pm 0.3$ dB
3010	$\pm 0.3$ dB up to 10 dB) $\pm 0.3$ dB or 1.5% to 60 dB $\pm 2\%$ to 70 dB
3014	$\pm 0.3$ dB up to 10 dB $\pm 0.3$ dB or 1.5% to 60 dB $\pm 2\%$ to 110 dB

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

**SHAFT ROTATION:** counter clockwise for increasing attenuation

**STEP ANGLE:** 32.7°

**DRUM CONFIGURATIONS:**

Single Drum: 3003, 3006, 3007

Dual Drum: 3010, 3014

**SWITCHING LIFE:** 1,000,000 steps

**REPEATABILITY:**  $\pm 0.1$  dB over frequency range and rated life

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

### MAXIMUM SWR & ZERO INSERTION LOSS:

Frequency (GHz)	SWR	Loss (dB)
3003	1.20	< 0.3
3006	1.20	< 0.2
3007	1.30	< 0.3
3010	1.35	< 0.7
3014	1.30	< 0.5

**INCREMENTAL PHASE SHIFT:**  $\sim 0.25^\circ$  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.

**CALIBRATION:** Test data is available at additional cost.

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

### MODEL NUMBER DESCRIPTION:

Example:

**3010 - XXX**

Basic Model  
Number

Add Dash Number

-100 (standard unit no options)

-103 (panel seal)\*

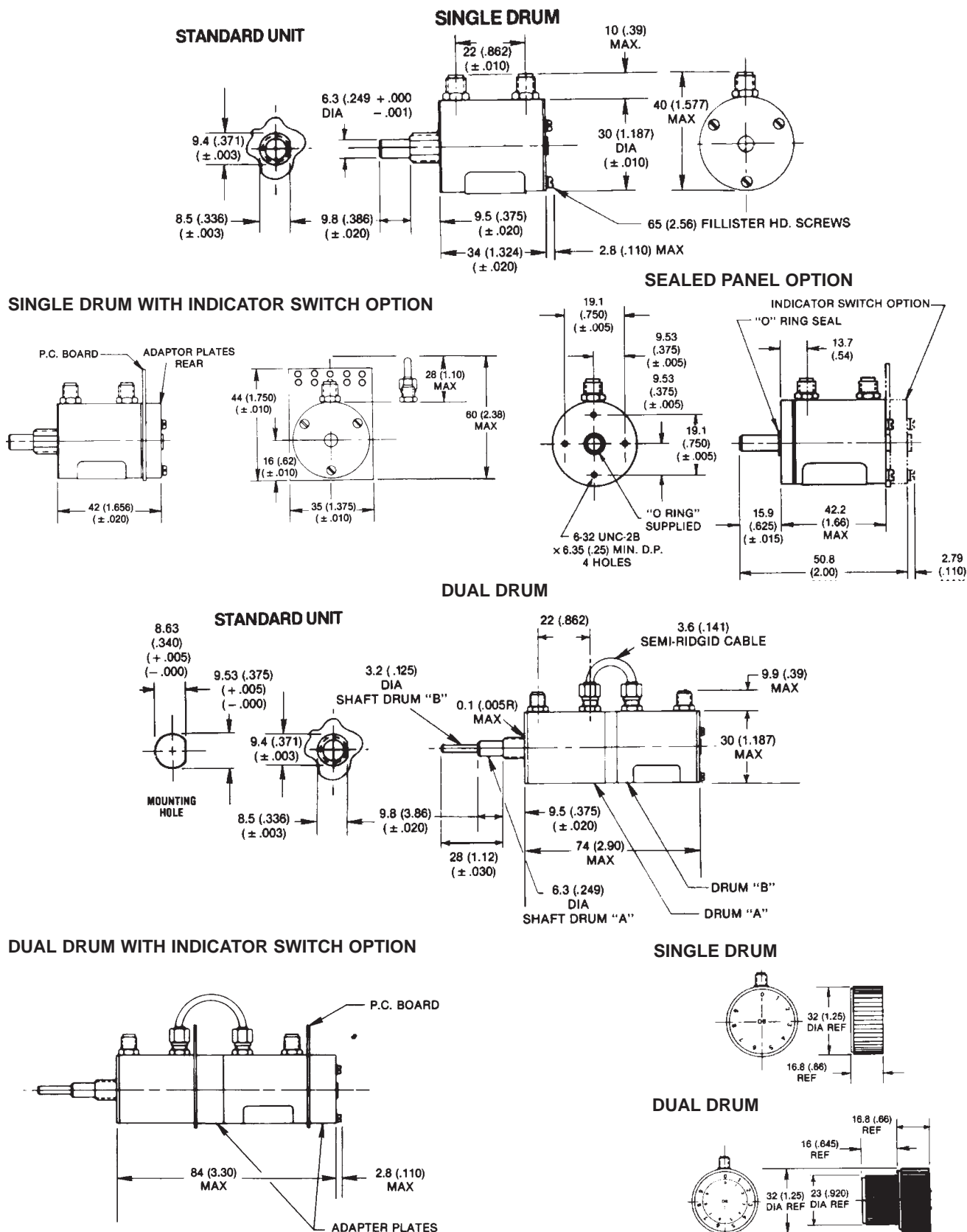
-120 (indicator switch)

-123 (indicator switch and panel seal)\*

\*Single Drum Units only.



## PHYSICAL DIMENSIONS:



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