

# Multi-Turn Precision Potentiometer

## Model 9300 Series



### Features:

- 1-13/16" diameter
- 3-turn
- Wirewound



### Model Styles Available

9301	1/4" Shaft, 3/8" Bushing
9303	1/4" Shaft, Servo

### Electrical

Resistance Range, Ohms	30 to 190K
Standard Resistance Tolerance	±5%
Minimum Practical Resistance Tolerance	±1%
Independent Linearity	±0.25%
Minimum Practical Independent Linearity	±0.2%, < 150 Ohms ±0.1%, 150-1,500 Ohms ±0.05%, 1,501-9,999 Ohms ±0.04%, ≥10K Ohms
Power Rating, Watts	3.0 at 70°C derating to 0 at 125°C
Dielectric Strength	1,000V rms
Insulation Resistance, Minimum	1,000 Megohms
Noise, Maximum	100 Ohms
Actual Electrical Travel	1,080° + 3° - 0°, ≤100 Ohms 1,080° + 2° - 0°, 101-700 Ohms 1,080° + 1° - 0°, >700 Ohms
Electrical Continuity Over Travel	+90° ±5° at each end
Tap Tolerance	±2°, ≤100 Ohms ±1°, 101-700 Ohms ±0.5°, >700 Ohms
End Voltage, Maximum	Within Std. Linearity Tolerance

Specifications subject to change without notice.

#### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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## Mechanical

Total Mechanical Travel	1260° ± 5°	
Number of Cups, Maximum	3	
Weight, Nominal (per gang)	3.4 oz.	
Static Stop Strength	600 oz.-in.	
Backlash, Maximum	Essentially zero	
Shaft End Play, Maximum	.005*	
Shaft Runout, T.I.R., Maximum	.0005*	
Pilot Diameter Runout, T.I.R., Maximum	.001*	
Lateral Runout, T.I.R., Maximum	.0015*	
Starting Torque, Maximum	1.3 oz.-in.	
Running Torque, Maximum	0.9 oz.-in.	
Panel Nut Tightening Torque, Maximum	<b>9301</b>	<b>9303</b>
	25 lb.-in.	N/A
Shaft Radial Play, Maximum	0.002*	0.001*

## Environmental

Operating Temperature Range	Static: -65°C to +125°C
	Dynamic: -40°C to +125°C
Temperature Cycling	5 cycles, -65°C to +125°C (5% ΔR)
Shock, 6ms Sawtooth	50G's (0.1ms discontinuity max.)
Vibration	5G's, 10 to 2,000 Hz (5% ΔR, 0.1ms discontinuity max.)
Moisture Resistance	Ten 24 hour cycles (3% ΔR)
High Temperature Exposure	1,000 hours at 125°C (5% ΔR)
Rotational Load Life	2 mil. shaft rev. plus 900 hrs. at rated wattage at 70°C (5% ΔR)

### STANDARD RESISTANCE VALUES, OHMS

Total Resistance	Theoretical Resolution (% Nominal)	Tempco of Wire
1K	0.039	±20 ppm/°C
5K	0.032	±20 ppm/°C
10K	0.027	±20 ppm/°C
20K	0.021	±20 ppm/°C
50K	0.017	±20 ppm/°C

#### General Note

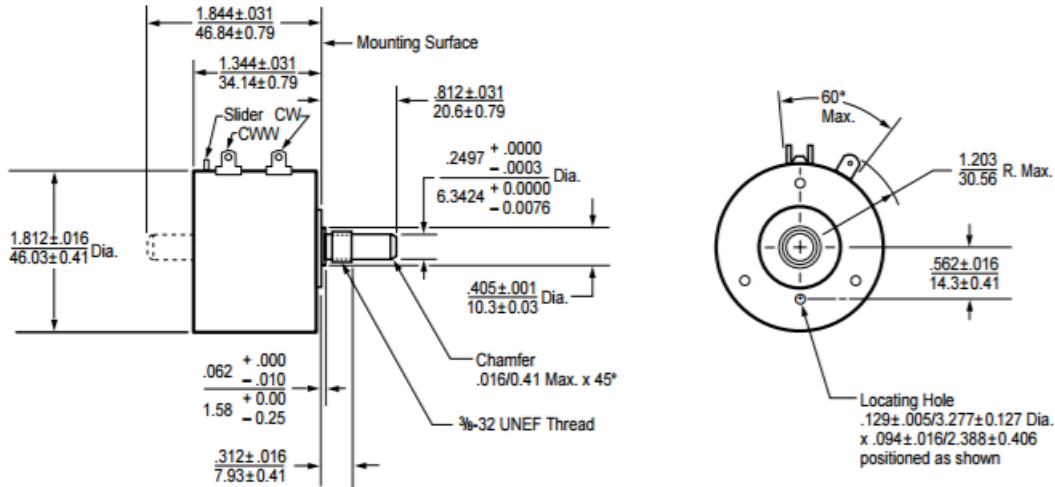
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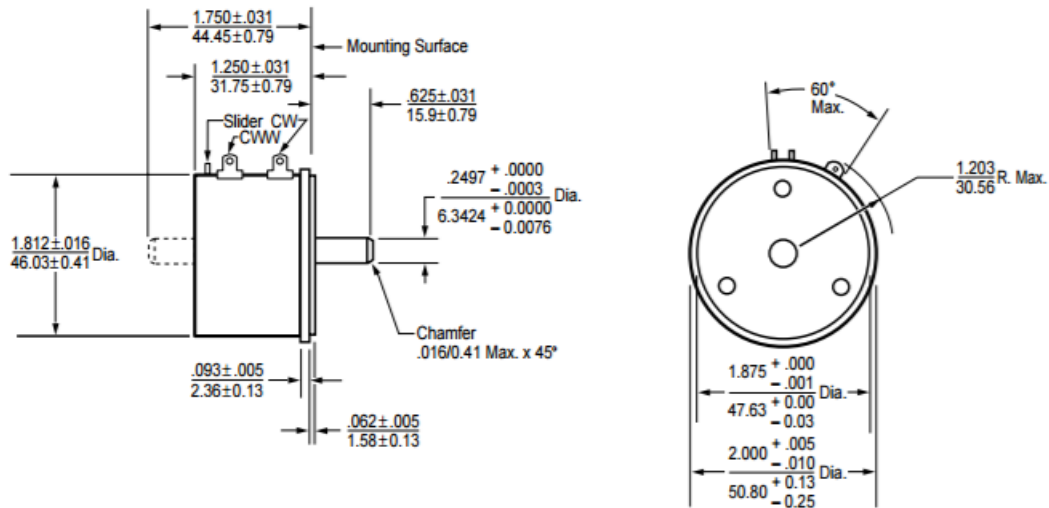
# Multi-Turn Precision Potentiometer



**Model 9301  
Bushing Mount**



**Model 9303  
Servo Mount**



**METRIC CONVERSIONS**

1 in.	25.4 mm	1 oz.-in.	0,007 N-m
1 oz.	28.4 gm	1 lb.-in.	0,113 N-m

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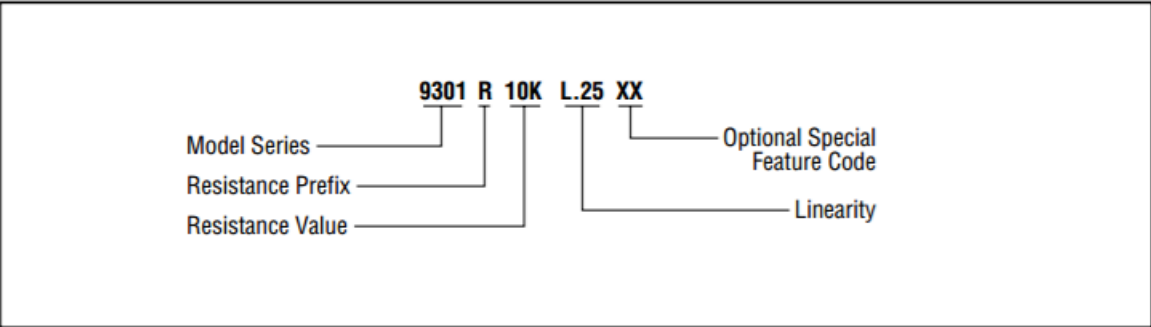
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## SPECIAL FEATURES

Center Tap	CT
Linearity Tape	LT
Rear Shaft Extension	RS
Flatted Shaft	FS
Slotted Shaft	SS
Shaft Lock (9301 only)	SL

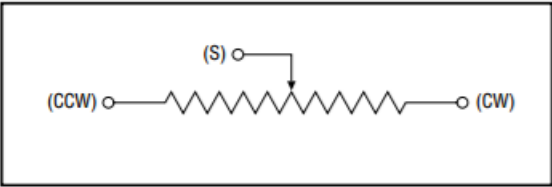
## ORDERING INFORMATION



## MATCHING TURNS COUNTING DIALS

9301: 2606, 2607, 2626, 2627, 2646, 2647, RB

## CIRCUIT DIAGRAM



## NOTES

Metric equivalents, based on 1 inch = 25.4mm are rounded to the same number of significant figures as in the original English units and are provided for general information only.

Tolerances unless otherwise specified:  
 Linear = ± .01 inches (.25mm)  
 Angular = ± 2 degrees

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