

# MODEL 6180 SERIES

7/8" Diameter

Single Turn

Conductive Plastic

Precision Potentiometer /  
Position Sensor



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## MODEL STYLES

6181	1/8" Shaft, 1/4" Bushing
6186	1/8" Shaft, 3/8" Bushing
6187	1/4" Shaft, 3/8" Bushing

## ELECTRICAL

Resistance Range, Ohms	1K to 100K
Standard Resistance Tolerance	±10%
Minimum Practical Resistance Tolerance	±5%
Independent Linearity *	±1.0%
Minimum Practical Independent Linearity	±0.5%
Input Voltage, Maximum	400Vdc not to exceed power rating
Power Rating, Watts	1.0 at 70°C derating to 0 at 125°C
Dielectric Strength	750V rms
Insulation Resistance, Minimum	1,000 Megohms
Output Smoothness, Maximum	0.1%
Actual Electrical Travel, Nominal	340° (300° with stop feature)
Electrical Continuity Travel, Nominal	350° (320° with stop feature)
End Voltage, Maximum	0.5% of input voltage
Resolution	Essentially Infinite
Temperature Coefficient**	-800 ppm/°C

Specifications subject to change without notice.

\* Linearity is measured between 1% and 99% of input voltage.

\*\* Special tempco available to ±100ppm/°C.

**ENVIRONMENTAL (MIL-R-39023)**

Operating Temperature Range	Static: -65°C to +125°C Dynamic: -40°C to +125°C
Temperature Cycling	5 cycles, -65°C to +125°C (10% ΔR)
Shock, 6ms Sawtooth	100G's (0.1ms discontinuity max.)
Vibration	10G's, 10 to 500 Hz (2% ΔR, 0.1ms discontinuity max.)
Moisture Resistance	Five 24 hour cycles (25% ΔR)
High Temperature Exposure	1,000 hours at 125°C (0.5% ΔR)
Rotational Life	5 mil. shaft rev.
Rotational Load Life	5 mil. shaft rev. (10% ΔR)

**MECHANICAL**

Total Mechanical Travel	360° (320° ±3° with stop feature)
Number of Gangs, Maximum	1
Weight, Nominal (single gang)	0.53 oz.
Backlash, Maximum	1°
Static Stop Strength	40 oz.-in.
Panel Nut Tightening Torque, Maximum	25 lb.-in.
Start/Run Torque, Maximum	1.0 oz.-in.

**STANDARD RESISTANCE VALUES, OHMS**

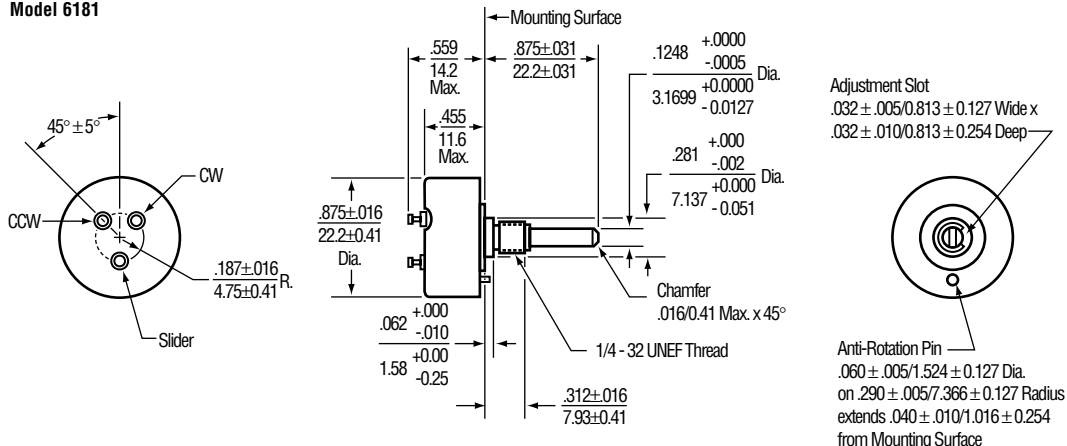
1K	2K	5K	10K	20K	50K
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**METRIC CONVERSIONS**

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

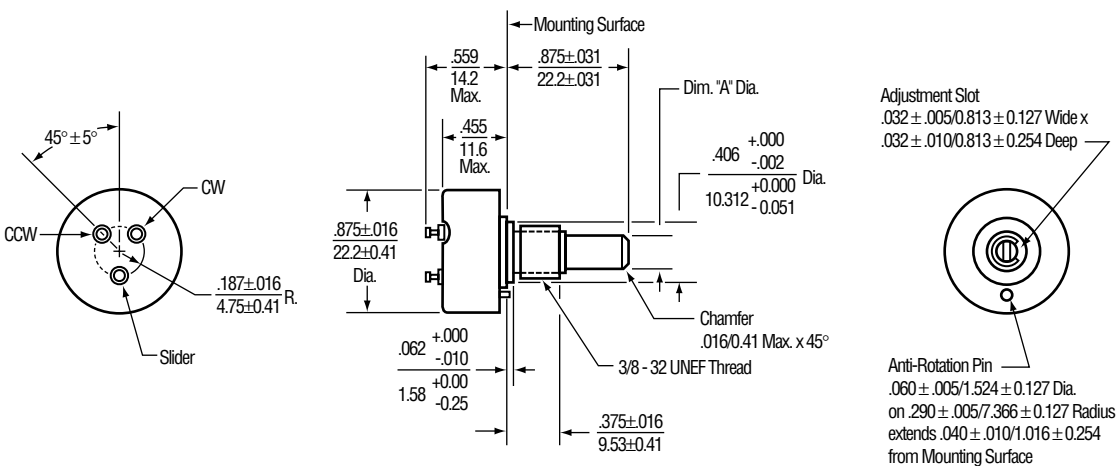
## OUTLINE DIMENSIONS (Inch/mm)

Model 6181



## OUTLINE DIMENSIONS (Inch/mm)

Model 6186 & 6187

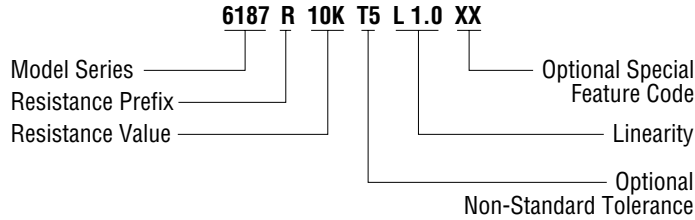


Dim.	Model 6186	Model 6187
A	$.1248$ ( $^{+.0000}_{-.0005}$ )	$.2497$ ( $^{+.0000}_{-.0005}$ )
	$3.1699$ ( $^{+.00000}_{-.0127}$ )	$6.3424$ ( $^{+.00000}_{-.0127}$ )

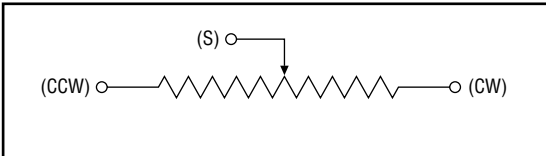
## SPECIAL FEATURES

Center Tap	CT
Linearity Tape	LT
Shaft Lock	SL
Stop	ST

## ORDERING INFORMATION



## 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

