

# Model 6180 series

## 7/8" Diameter Single Turn Conductive Plastic Precision Potentiometer / Position Sensor



### MODEL STYLES AVAILABLE

6181	1/8" Shaft, 1/4" Bushing
6184	6 mm Shaft, 3/8" Bushing
6186	1/8" Shaft, 3/8" Bushing
6187	1/4" Shaft, 3/8" Bushing
6188 for side load applications	1/4" Shaft, 3/8" Bronze Bushing

### ELECTRICAL<sup>1</sup>

Resistance Range	1K to 100K Ohms
Standard Resistance Tolerance	±10%
Minimum Practical Resistance Tolerance	±5%
Independent Linearity <sup>2</sup>	±1%
Minimum Practical Independent Linearity	±0.5%
Input Voltage	400 VDC maximum, not to exceed power rating
Power Rating	1.0 Watt at 70°C, derating to 0 at 125°C
Dielectric Strength	750 V rms
Insulation Resistance	1,000 Megohms minimum
Output smoothness	0.1% maximum
Actual Electrical Travel	340° nominal (300° with stop feature)
Electrical Continuity Travel	350° nominal (320° with stop feature)
End Voltage	maximum 0.5% of input voltage
Resolution	essentially infinite
Temperature Coefficient of Resistance <sup>3</sup>	-400 ppm/°C typical
Temperature Coefficient of Output Voltage <sup>4</sup>	±10 ppm/°C typical

### MECHANICAL

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

<sup>1</sup> Specifications subject to change without notice.

<sup>2</sup> Linearity is measured between 1% and 99% of input voltage.

<sup>3</sup> Special TCR available to ±100 ppm/°C.

<sup>4</sup> Measured with 10 VDC CW to CCW and slider at 50% of electrical travel



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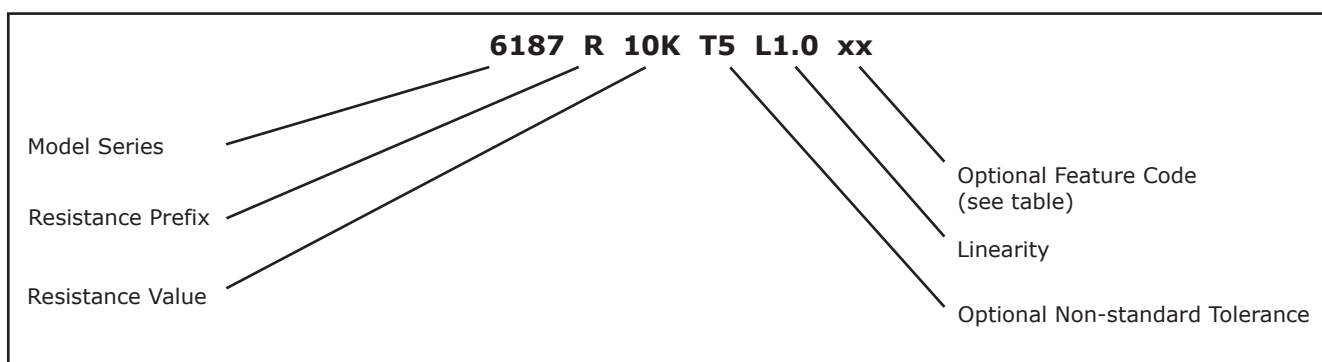


# Model 6180

## ENVIRONMENTAL (MIL-PRF-39023)

Operating Temperature Range	-40°C to +125°C dynamic, -65°C to +125°C static
Temperature Cycling	5 cycles, -65°C to +125°C, maximum 10% ΔR
Shock	6 ms Saw-tooth, 100 G's, 0.1 ms maximum discontinuity
Vibration	10 G's, 10 to 500 Hz, maximum 2% ΔR, 0.1 ms maximum discontinuity
Moisture Resistance	five 24 hour cycles, maximum 25% ΔR
High Temperature Exposure	1,000 hours at 125°C, maximum 0.5% ΔV <sub>R</sub>
Rotational Life	5 million shaft revolutions (no sideload, 6188 up to 8 oz sideload)
Rotational Load Life	5 million shaft revolutions, maximum 10% ΔR
Ingress Protection Rating (IP Code)	IP50, IP66 available as option (feature code ES)

## ORDERING INFORMATION

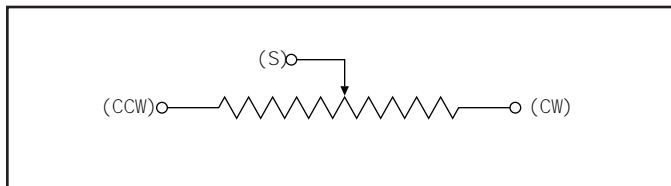


## FEATURE CODES

Center Tap	CT
Linearity Tape	LT
Shaft Lock 6187 only	SL
Stop	ST
Seal (IP66) 6184, 6187, or 6188 only	ES

When multiple feature codes are used the P/N shall be in the same sequence as listed in this table (top to bottom).

## CIRCUIT DIAGRAM



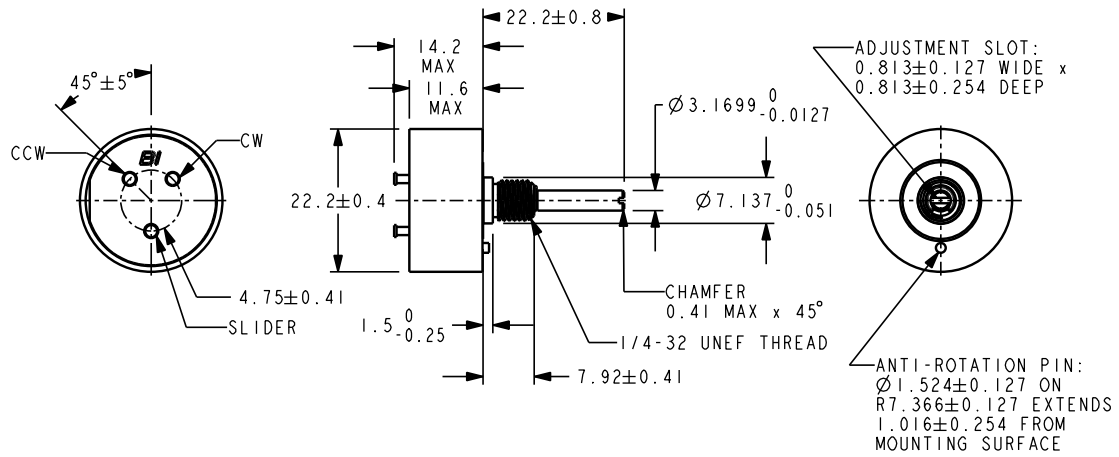
## STANDARD RESISTANCE VALUES

1K	2K	5K	10K	20K	50K
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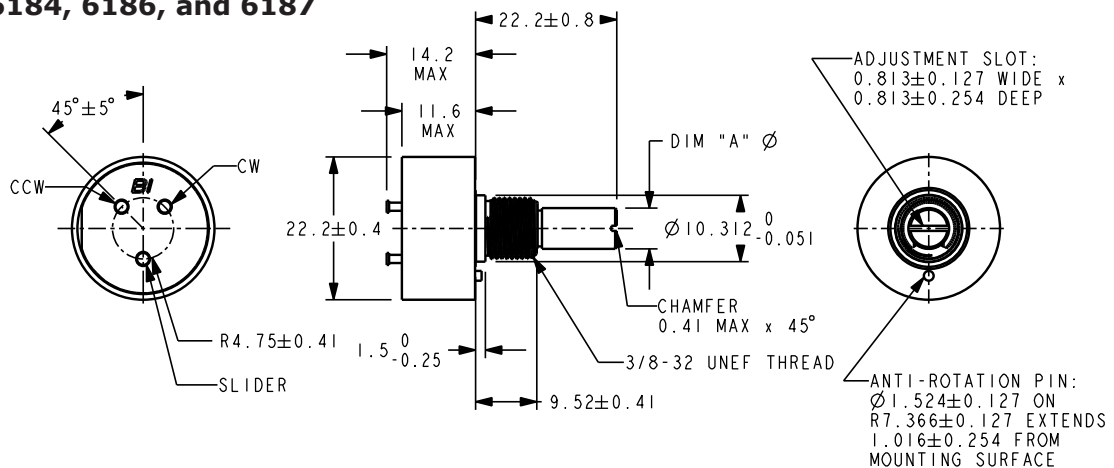
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## OUTLINE DRAWING

### Model 6181



### Models 6184, 6186, and 6187



DIM	MODEL 6184	MODEL 6186	MODEL 6187
A	6.0 +0.0000 -0.0127	3.1699 +0.0000 -0.0127	6.3424 +0.0000 -0.0127

Dimensions in mm