

# Model 6180 Series

## Precision Potentiometer / Position Sensor



### Features:

- Lead-free
- RoHS 2 compliant
- 7/8" diameter
- Single turn
- Conductive plastic



### Applications:

- Pedal position
- Joystick controls
- Valve control
- Wind vane
- Panel control
- Test and measurement
- Medical equipment
- Angular position

## 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

#### General Note

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### Electrical

Resistance range	1K to 100K Ohms
Standard resistance tolerance	±10%
Minimum practical resistance tolerance	±5%
Independent linearity	±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°C nominal (300° with stop feature)
Electrical continuity travel	350°C nominal (320°C with stop feature)
End voltage	Maximum 0.5% of input voltage
Resolution	Essentially infinite
Temperature coefficient of resistance	-400 ppm/°C typical
Temperature coefficient of output voltage	±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.

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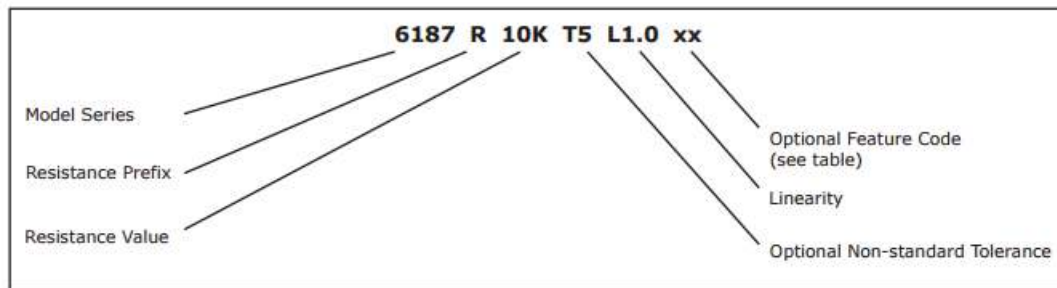
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### Environmental (MIL-PRF-39023)

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
Flatted Shaft, 6187 or 6188 only	FS
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).

### Standard Resistance Values

1K	2K	5K	10K	20K	50K	100K
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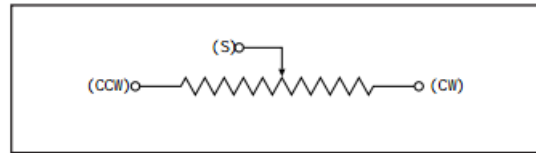
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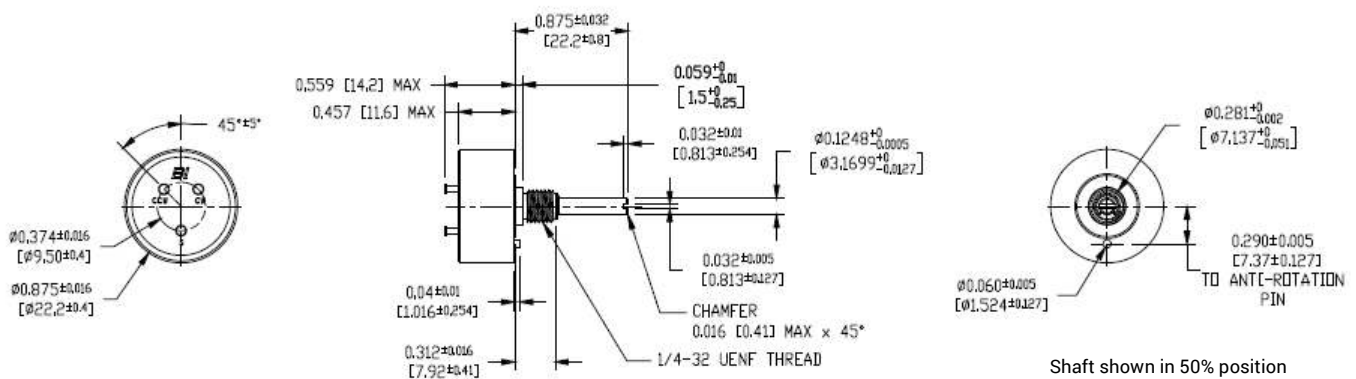


### Circuit Diagram

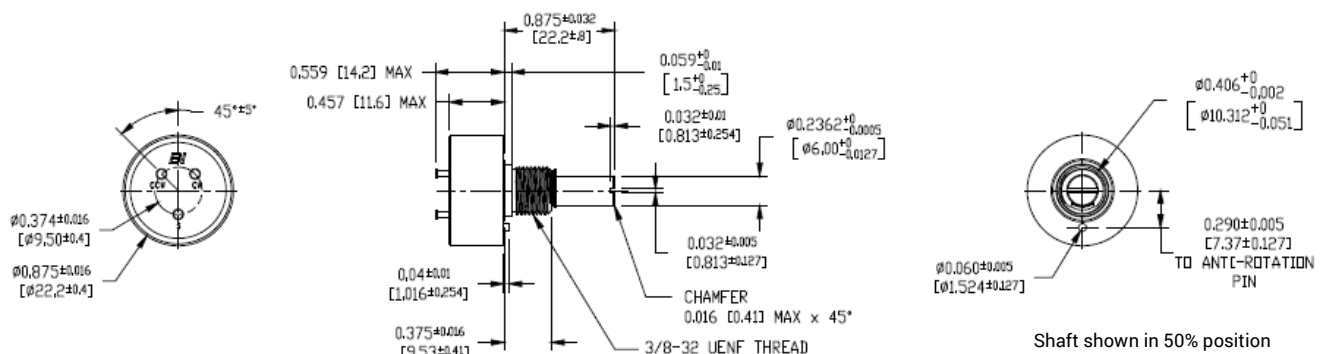


### Outline Drawing

#### Model 6181



#### Model 6184



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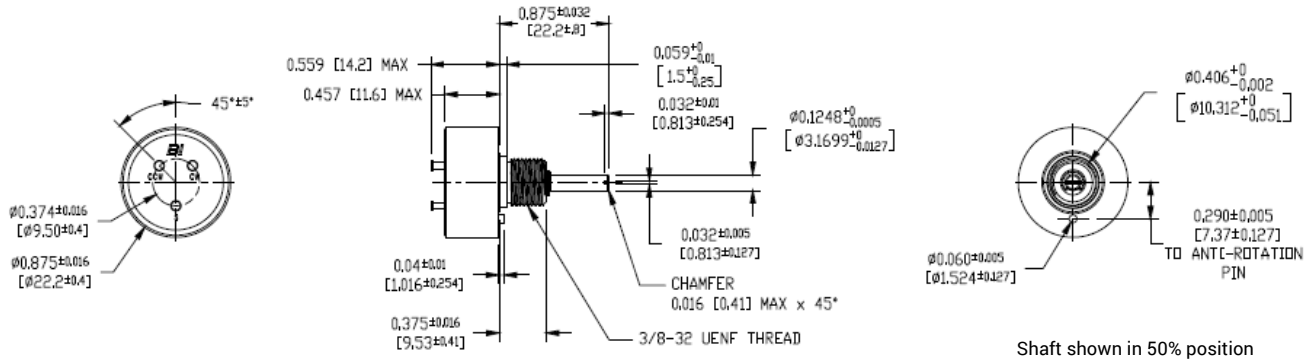
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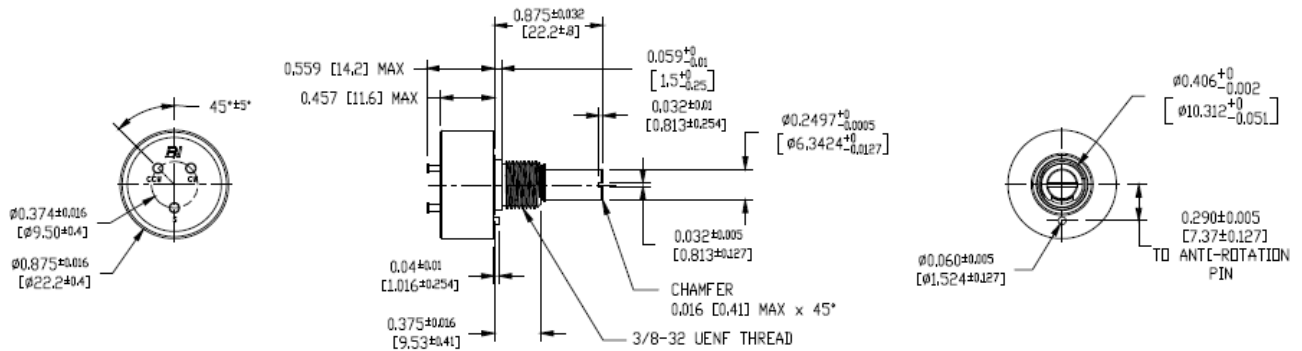


### Outline Drawing

#### Model 6186



#### Model 6187 / 6188



#### FS (Flatted Shaft) Option



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Issue	Change Description	Approval	Date
A			
B			2/2015
C	Updated logo and fonts. Changed address in footer from Fullerton to Mexicali	Brooke Combs	4/5/2019
D	Add Flatted Shaft option code and dimensional details, updated Outline drawings to include English units, add 100K as a standard value.	A. Harrell	12/22/2022

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