

# Multi-Turn Precision Potentiometer

## Model 7380 Series



### Features:

- 7/8" diameter
- 3-turn
- Wirewound



## Model Styles

|   |                          |
|---|--------------------------|
| 7381                                    | 1/8" Shaft, 1/4" Bushing |
| 7383                                    | 1/8" Shaft, Servo        |
| 7386                                    | 1/4" Shaft, 3/8" Bushing |
| 7388 (for heavy side load applications) | 1/4" Shaft, 3/8" Bushing |

## Electrical

|   |  |
|---|--|
| Resistance Range                        | 100 to 30K ohms  |
| Standard Resistance Tolerance           | ±5%  |
| Minimum Practical Resistance Tolerance  | ±1%  |
| Independent Linearity <sup>2</sup>      | ±0.30% (<500 ohms), ±0.25% (≥500 ohms)                 |
| Minimum Practical Independent Linearity | ±0.30% (<500 ohms), ±0.20% (≥500 ohms)                 |
| Power Rating                            | 1.5 Watts at 70°C, derating to 0 at 125°C              |
| Dielectric Strength                     | 1,000 V rms  |
| Insulation Resistance                   | 1,000 Megohms minimum                                  |
| Noise                                   | 100 ohms maximum                                       |
| Actual Electrical Travel                | 1080° +10° -0° (>100 ohms), 1080° +10° -5° (≤100 ohms) |
| End Voltage                             | maximum 0.25% of input voltage                         |
| Tap Tolerance                           | ±3°  |

## Environmental

|  |   |
|--|---|
| Operating Temperature Range                    | -40°C to +125°C dynamic, -55°C to +125°C static                       |
| Temperature Cycling                            | 5 cycles, -55°C to +125°C, maximum 5% ΔR                              |
| Shock  | 6 ms Saw-tooth, 100 G's, 0.1 ms maximum discontinuity                 |
| Vibration                                      | 15 G's, 10 to 2,000 Hz, maximum 5% ΔR, 0.1 ms maximum discontinuity   |
| Moisture Resistance                            | Five 24 hour cycles, maximum 3% ΔR                                    |
| High Temperature Exposure                      | 1,000 hours at 125°C, maximum 5% ΔR                                   |
| Rotational Load Life (1 lb side load for 7388) | 300K shaft revolutions + 900 hours at 1.5 Watts & 70°C, maximum 5% ΔR |
| Ingress Protection Rating (IP Code)            | IP50, IP66 available as option (feature code ES)                      |

### General Note

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# Multi-Turn Precision Potentiometer

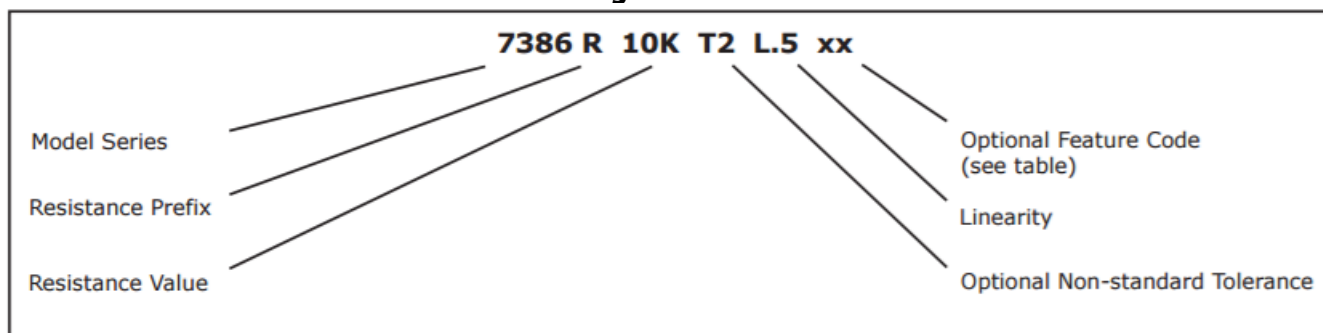
## Model 7380 Series



### Mechanical

|   |                   |                           |
|---|-------------------|---------------------------|
| Total Mechanical Travel                                 |                   | 1080° +15° -0°            |
| Number of Gangs   |                   | 2 maximum                 |
| Weight (single gang)                                    |                   | 0.75 oz. nominal          |
| Backlash  |                   | 1° maximum                |
|   | <b>7381, 7386</b> | <b>7383</b>               |
| Static Stop Strength                                    | maximum           | 48 oz.-in. / 36 oz.-in.   |
| Panel Nut Tightening Torque                             | maximum           | 25 lb.-in. / n/a          |
| Shaft End Play  | maximum           | 0.010" / 0.005"           |
| Shaft Runout  | maximum T.I.R.    | 0.003" / 0.002"           |
| Pilot Diameter Runout                                   | maximum T.I.R.    | 0.004" / 0.002"           |
| Lateral Runout  | maximum T.I.R.    | 0.005" / 0.004"           |
| Shaft Radial Play                                       | maximum           | 0.003" / 0.002"           |
| Start/Run Torque (per gang, ES option adds 0.5 oz.-in.) | maximum           | 1.2 oz.-in. / 0.9 oz.-in. |

### Ordering Information



#### FEATURE CODES

|  |    |
|--|----|
| Center Tap   | CT |
| Linearity Tape   | LT |
| Flatted Shaft  | FS |
| Slotted Shaft (standard on single cup 7386 without RS feature)         | SS |
| Rear Shaft Extension (7381, 7386 single cup only)                      | RS |
| Shaft Lock (7386 only)   | SL |
| High Torque 2-6 oz.-in. (7386 only)                                    | HT |
| Additional Gang  | 2G |
| Gold Plated Solder Lug Terminals (see optional terminal configuration) | FT |
| Seal (IP66) 7386 or 7388 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

| Total Resistance (Ohms) | Theoretical Resolution (% nominal) | Tempco of wire (ppm/°C) |
|-------------------------|------------------------------------|-------------------------|
| 100                     | 0.059                              | ±20                     |
| 200                     | 0.037                              | ±20                     |
| 500                     | 0.030                              | ±20                     |
| 1K                      | 0.024                              | ±20                     |
| 2K                      | 0.020                              | ±20                     |
| 5K                      | 0.018                              | ±20                     |
| 10K                     | 0.017                              | ±20                     |
| 20K                     | 0.016                              | ±20                     |

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### CIRCUIT DIAGRAM



### MATCHING TURNS COUNTING DIALS

**7381: RBJ, 2601, 2641**

**7386: RB, 2126, 2606, 2606S, 2607, 2607S, 2626, 2627, 2646, 2646S, 2647, 2647S**

### OUTLINE DRAWINGS

**Models 7381 & 7386**  
**Bushing Mount with Sleeve Bearing**

| Dim. | 7381   | 7386   |
|------|--|--|
| A    | $\frac{.688 \pm .013}{17.475 \pm 0.787}$         | $\frac{.812 \pm .031}{20.625 \pm 0.787}$         |
| B    | $\frac{.1248 \pm .0000}{3.1699 \pm 0.0076}$ Dia. | $\frac{.2500 \pm .0000}{6.3500 \pm 0.0127}$ Dia. |
| C    | $\frac{.281 \pm .000}{7.137 \pm 0.051}$ Dia.     | $\frac{.406 \pm .000}{10.312 \pm 0.051}$ Dia.    |
| D    | 1/4-32 UNEF Thread                               | 3/8-32 UNEF Thread                               |

Technical drawing details include:  
 - Mounting Surface  
 - Slider  
 - CCW  
 - CW  
 - Chamfer .016/0.41 Max. x 45°  
 - Slot: .032±.005/0.813±0.127 Wide X .032±.010-.000/0.813±0.254-0.000 Deep (Not on Rear Shaft Models)  
 - 75° Max. angle  
 - .625 R Max. radius  
 - .875±.016 Dia. dimension

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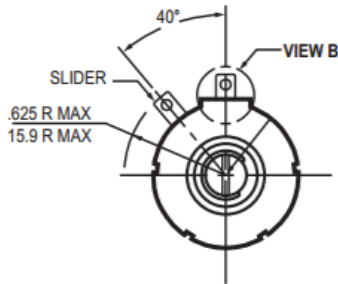
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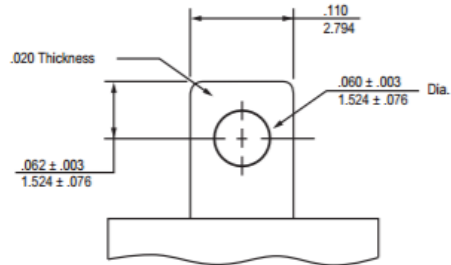
## Model 7380 Series



### Optional Terminal Configuration

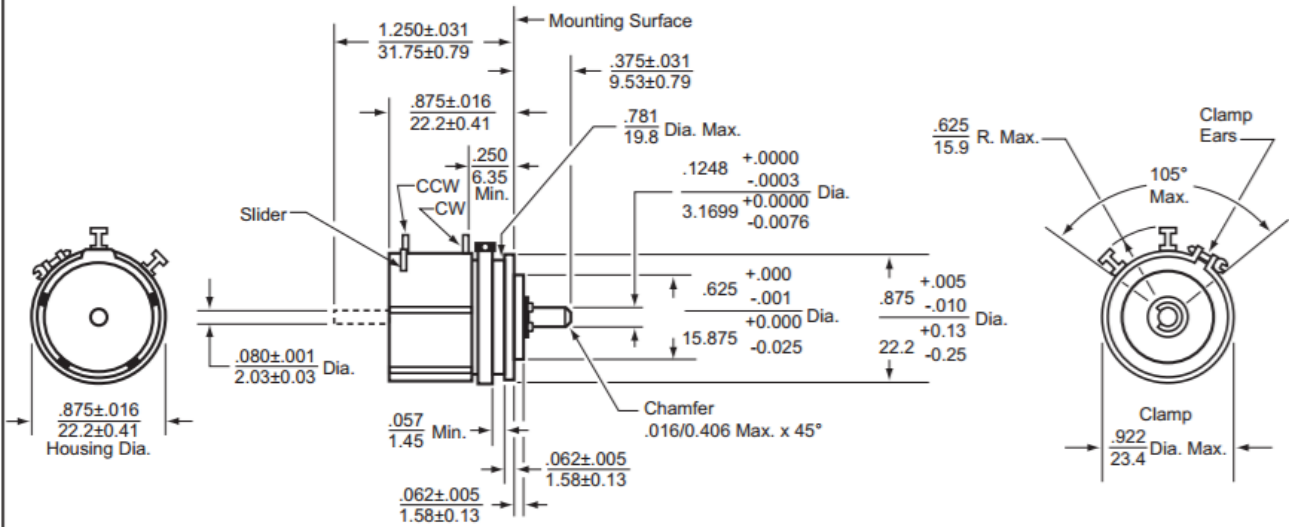


Use Special Feature Code "FT" to order.

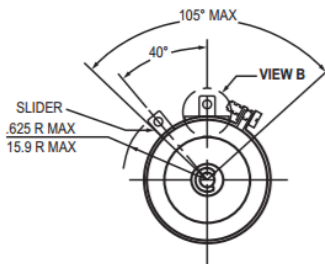


Enlarged View B

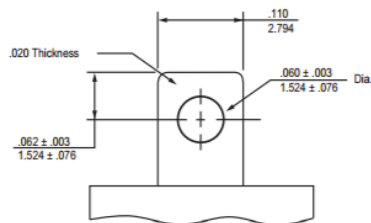
### Model 7383 Servo Mount with Ball Bearing



### Optional Terminal Configuration



Use Special Feature Code "FT" to order.



Enlarged View B

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