# Multi-Turn Precision Potentiometer

## Model 7200 Series

**Features:**

- 7/8” diameter
- 10-turn
- Wirewound

## Model Styles Available

| | |
|---|---|
| 7216, 7221 | Bushing Mount, Sleeve Bearing |
| 7223 | Servo Mount, Ball Bearing |

## Electrical

| | |
|---|---|
| Resistance Range, Ohms | 10 to 125K |
| Standard Resistance Tolerance | ±3% |
| Minimum Practical Resistance Tolerance | ±1% |
| Independent Linearity | ±0.25% |
| Minimum Practical Independent Linearity | ±0.25%, ≤ 20 Ohms |
| | ±0.15%, 21-49 Ohms |
| | ±0.10%, 50-99 Ohms |
| | ±0.075%, 100-999 Ohms |
| | ±0.05%, ≥ 1K Ohms |
| Power Rating, Watts | 2.0 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 | 3600° + 10° – 0°, > 25 Ohms |
| | 3600° + 10° – 5°, ≤ 25 Ohms |
| Tap Tolerance | ±5°, ≤20 Ohms |
| | ±3°, 21-49 Ohms |
| | ±2°, ≥50 Ohms |
| End Voltage, Maximum (% of input voltage) | 0.5%, <100 Ohms |
| | 0.25%, ≥100 Ohms |

Specifications subject to change without notice.
Available in a Hybrid version – contact factory for details.

General Note
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## Environmental

| | |
|---|---|
| Operating Temperature Range | Static: –65°C to +125°C<br>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 | 15G'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. + 900 hrs. at rated wattage at 70°C (5% ΔR)* |

* Model 7216 - Rotational Load Life = 1 mil. shaft rev.+900 hrs. at rated wattage at 70°C (5% ΔR)

## Mechanical

| | | | |
|---|---|---|---|
| Total Mechanical Travel | | | 3600° + 10° – 0° |
| Number of Gangs, Maximum | | | 2 |
| Weight, Nominal (single Gang) | | | 1.25 oz. |
| Static Stop Strength | | | 128 oz.-in. |
| Backlash, Maximum | | | 1.5° |
| | **7216** | **7221** | **7223** |
| Panel Nut Tightening Torque, Maximum | 25 lb.-in. | 25 lb.-in. | N/A |
| Shaft End Play, Maximum | .0085" | .005" | .005" |
| Shaft Runout, T.I.R., Maximum | .001" | .001" | .001" |
| Pilot Diameter Runout, T.I.R., Maximum | .001" | .001" | .0015" |
| Lateral Runout, T.I.R., Maximum | .003" | .003" | .003" |
| Shaft Radial Play, Maximum | .003" | .003" | .002" |
| Start/Run Torque, Maximum (per Gang) | | | 0.6 oz.-in / 0.5 oz.-in. |

## Special Features

| | |
|---|---|
| Center Tap | CT |
| Linearity Tape | LT |
| Rear Shaft Extension | RS |
| Flatted Shaft | FS |
| Slotted Shaft | SS |
| Shaft Lock (7216, 7221 only) | SL |
| Additional Gangs | 2G |


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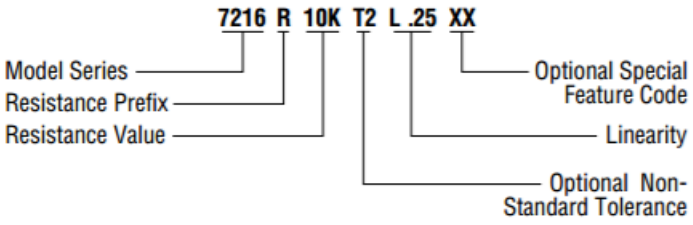
## STANDARD RESISTANCE VALUES, OHMS

| Total Resistance | Theoretical Resolution (% Nominal) | Tempco of Wire |
|---|---|---|
| 10 | 0.083 | + 800 ppm/°C * |
| 25 | 0.055 | + 800 ppm/°C * |
| 50 | 0.048 | + 800 ppm/°C * |
| 100 | 0.040 | + 800 ppm/°C * |
| 200 | 0.033 | + 800 ppm/°C * |
| 500 | 0.031 | ± 20 ppm/°C |
| 1K | 0.028 | ± 20 ppm/°C |
| 2K | 0.025 | ± 20 ppm/°C |
| 5K | 0.020 | + 130 ppm/°C * |
| 10K | 0.018 | + 130 ppm/°C * |
| 20K | 0.016 | + 130 ppm/°C * |
| 50K | 0.012 | ± 20 ppm/°C |
| 100K | 0.011 | ± 20 ppm/°C |

* Lower tempco available as a special model.

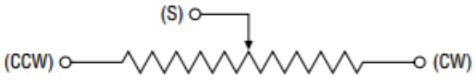
## Ordering Information




## MATCHING TURNS COUNTING DIALS

7216: 2606, 2606S, 2607, 2607S, 2626, 2627, 2646, 2646S, 2647, 2647S, RB
7221: RBJ, 2601, 2641

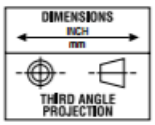
## CIRCUIT DIAGRAM




## 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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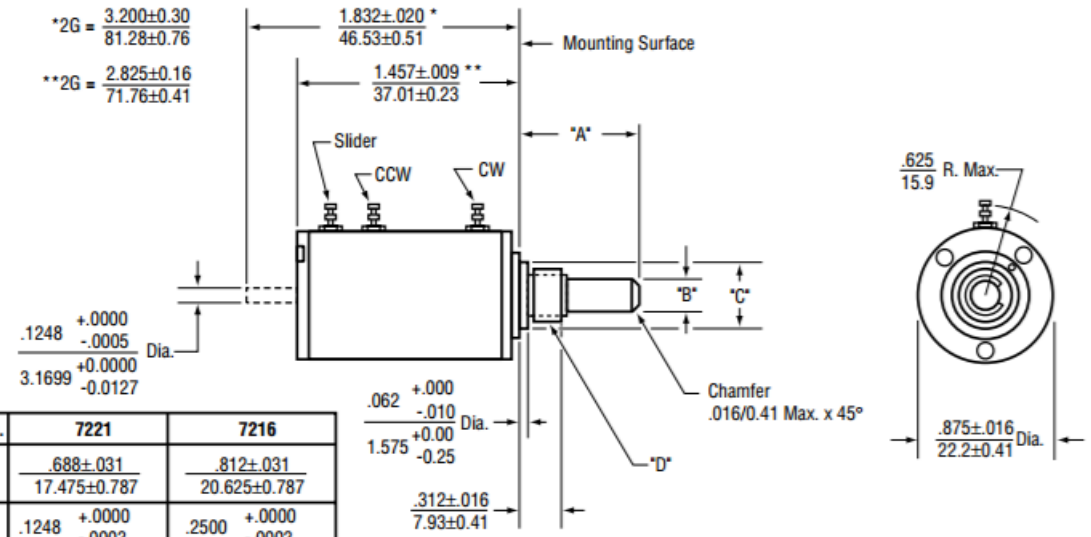
## Outline Drawing

**Model 7216 & 7221**
**Bushing Mount with Sleeve Bearing**




| Dim. | 7221 | 7216 |
|---|---|---|
| A | .688±.031 / 17.475±0.787 | .812±.031 / 20.625±0.787 |
| B | .1248 +.0000 -.0003 / 3.1699 +0.0000 -0.0076 | .2500 +.0000 -.0003 / 6.3500 +0.0000 -0.0076 |
| C | .281 +.000 -.002 / 7.137 +0.000 -0.051 | .406 +.000 -.002 / 10.312 +0.000 -0.051 |
| D | 1/4-32 UNEF Thread | 3/8-32 UNEF Thread |

**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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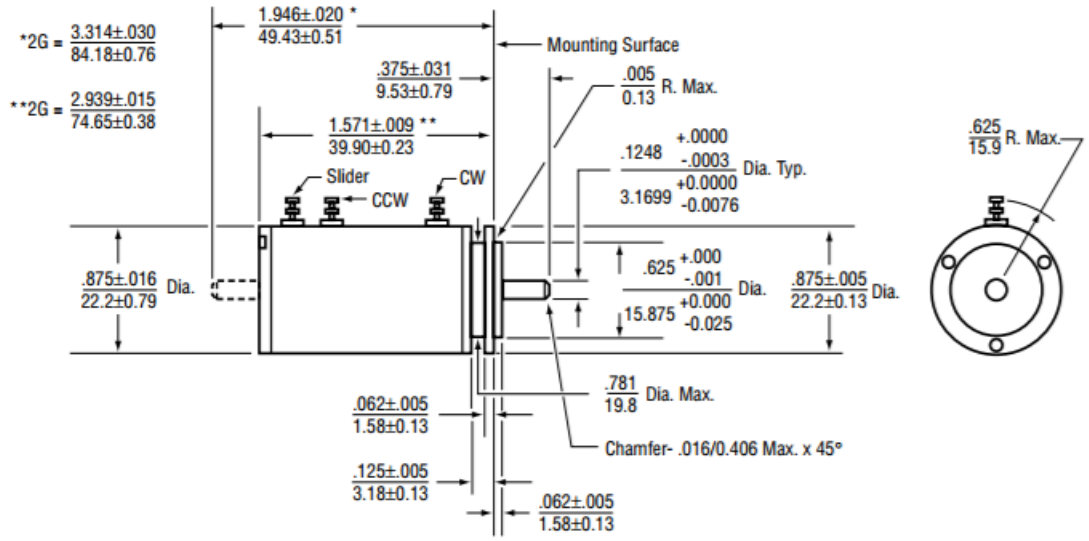
## Outline Drawing

**Model 7223**
**Servo Mount with Ball Bearing**





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