

# 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<br>±0.15%, 21-49 Ohms<br>±0.10%, 50-99 Ohms<br>±0.075%, 100-999 Ohms<br>±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<br>3600° + 10° - 5°, ≤ 25 Ohms  |
| Tap Tolerance                             | ±5°, ≤20 Ohms<br>±3°, 21-49 Ohms<br>±2°, ≥50 Ohms   |
| End Voltage, Maximum (% of input voltage) | 0.5%, <100 Ohms<br>0.25%, ≥100 Ohms   |

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

General Note  
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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TT Electronics | BI Technologies  
413 Rood RD, Suite 7  
Calexico, CA 92231  
Ph: +1 714 447 2345  
www.ttelectronics.com/bi-technologies

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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°                     |             |             |
|  | <b>7216</b>              | <b>7221</b> | <b>7223</b> |
| 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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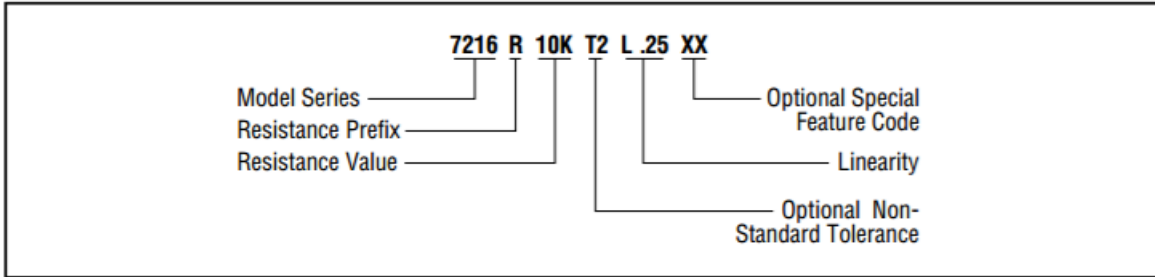


### STANDARD RESISTANCE VALUES, OHMS

| 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.

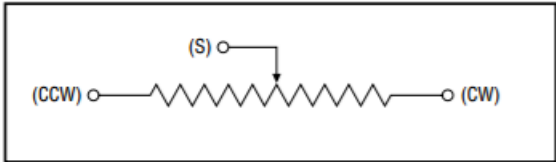
### Ordering Information



### 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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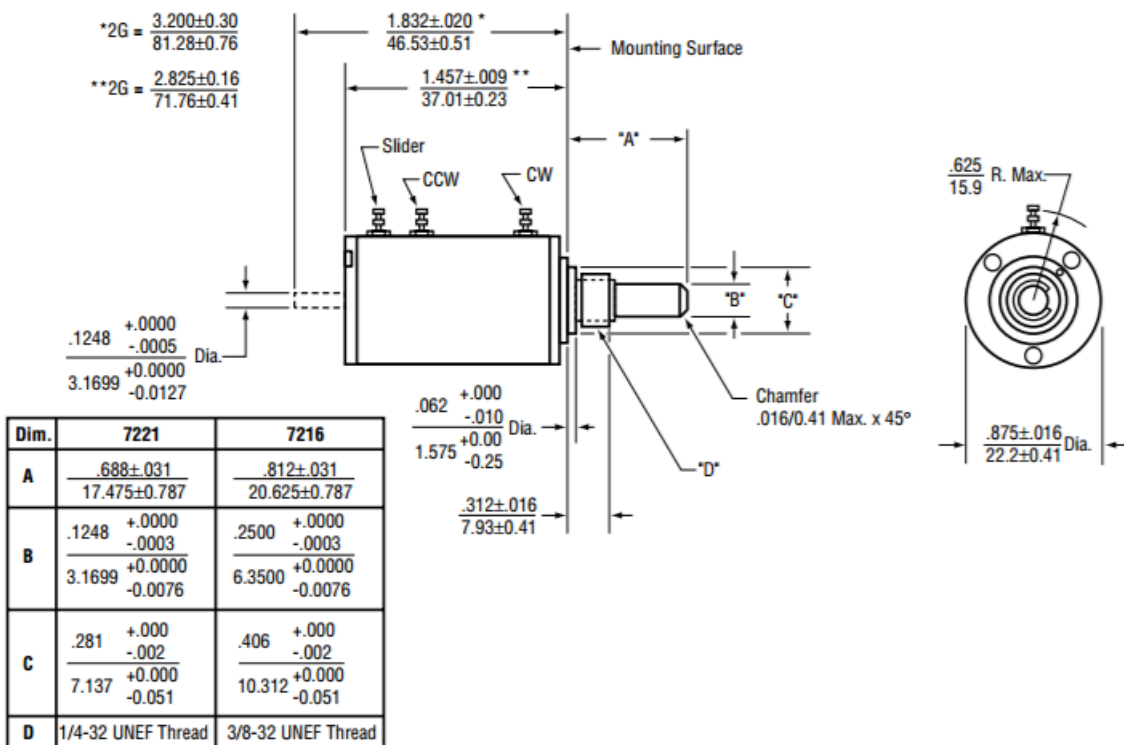
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### Outline Drawing

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



#### 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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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

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