

# 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

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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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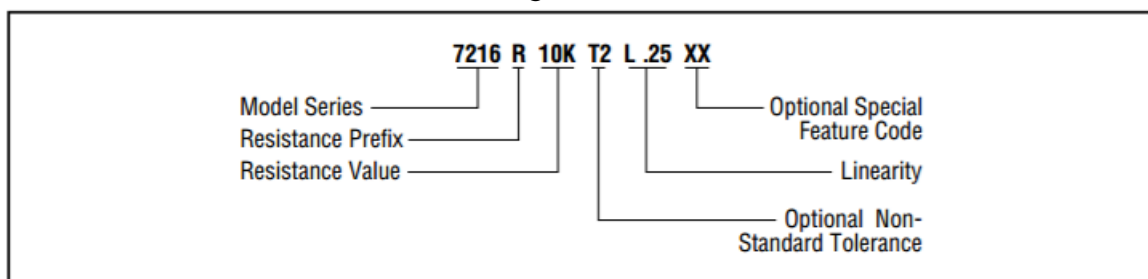


### STANDARD RESISTANCE VALUES, OHMS

| 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.

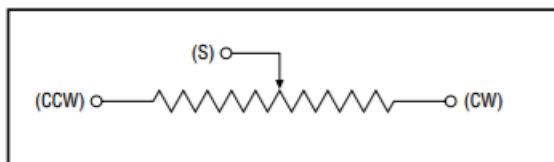
### Ordering Information



### MATCHING TURNS COUNTING DIALS

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

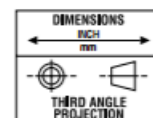
### CIRCUIT DIAGRAM



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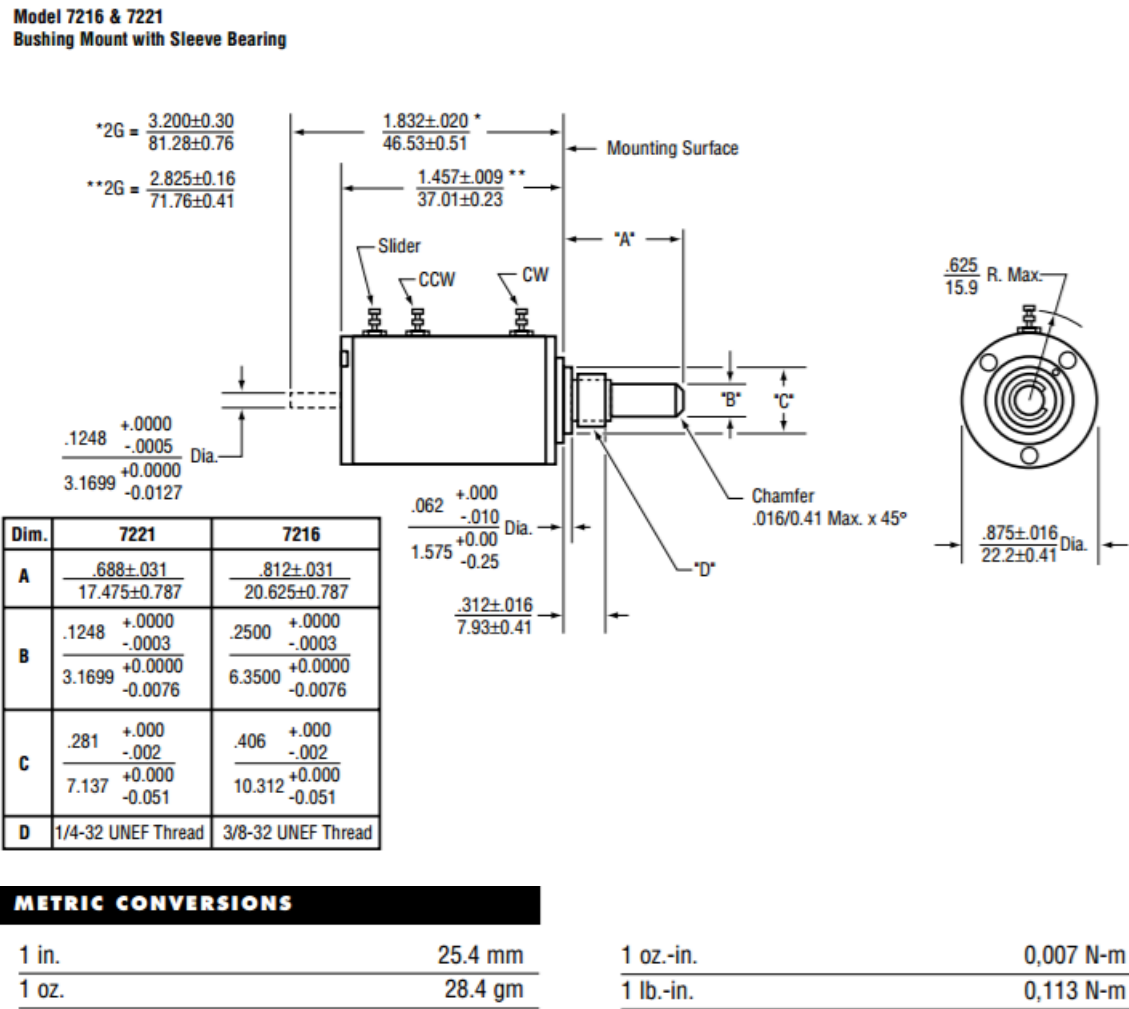
TT Electronics | BI Technologies  
 413 Rood RD, Suite 7  
 Calexico, CA 92231  
 Ph: +1 714 447 2345  
[www.ttelectronics.com/bi-technologies](http://www.ttelectronics.com/bi-technologies)

# Multi-Turn Precision Potentiometer

## Model 7200 Series



### Outline Drawing



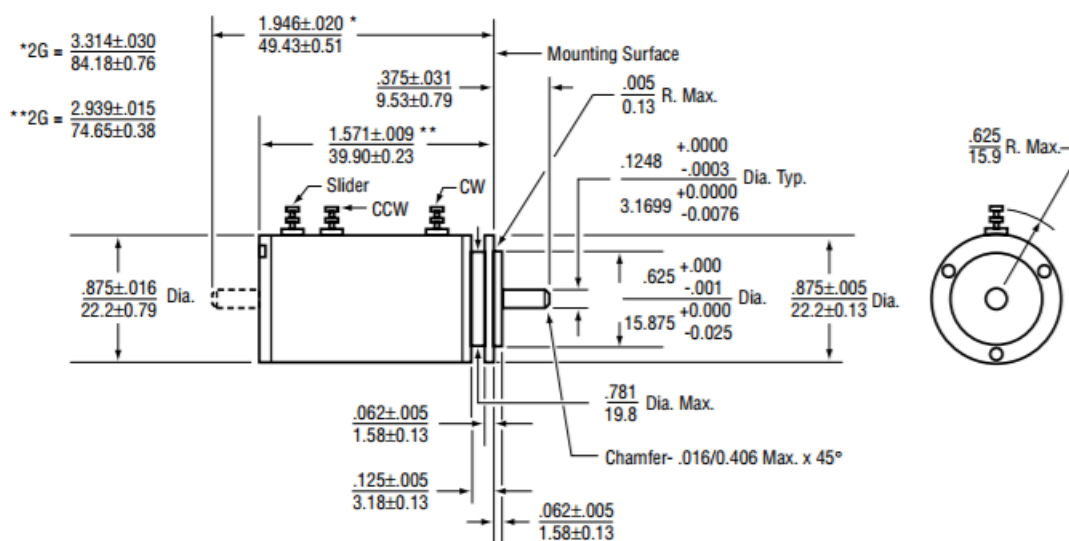
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TT Electronics | BI Technologies  
413 Rood RD, Suite 7  
Calexico, CA 92231  
Ph: +1 714 447 2345  
www.ttelectronics.com/bi-technologies

## Outline Drawing

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



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Calexico, CA 92231  
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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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