

# Model 7280

## 7/8" Diameter

## 10 Turn Wirewound

## Precision Potentiometer



### MODEL STYLES AVAILABLE

|                                         |                          |
|-----------------------------------------|--------------------------|
| 7281                                    | 1/8" Shaft, 1/4" Bushing |
| 7283                                    | 1/8" Shaft, Servo        |
| 7284                                    | 6 mm shaft, 3/8" Bushing |
| 7286                                    | 1/4" Shaft, 3/8" Bushing |
| 7288 (for heavy side load applications) | 1/4" Shaft, 3/8" Bushing |

### ELECTRICAL<sup>1</sup>

|                                         |                                                        |
|-----------------------------------------|--------------------------------------------------------|
| Resistance Range                        | 100 to 100K ohms                                       |
| Standard Resistance Tolerance           | ±5%                                                    |
| Minimum Practical Resistance Tolerance  | ±1%                                                    |
| Independent Linearity <sup>2</sup>      | ±0.25%                                                 |
| Minimum Practical Independent Linearity | ±0.15% (<300 ohms), ±0.075% (≥300 ohms)                |
| Power Rating                            | 2.0 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                | 3600° +10° -0° (>100 ohms), 3600° +10° -5° (≤100 ohms) |
| End Voltage                             | maximum 0.25% of input voltage                         |
| Tap Tolerance                           | ±3°                                                    |

### MECHANICAL

|                               |                |             |                  |
|-------------------------------|----------------|-------------|------------------|
| Total Mechanical Travel       |                |             | 3600° +15° -0°   |
| Number of Gangs               |                |             | 2 maximum        |
| Weight (single gang)          |                |             | 0.75 oz. nominal |
| Backlash                      |                |             | 1° maximum       |
| <b>7281, 7284, 7286, 7288</b> |                |             | <b>7283</b>      |
| Static Stop Strength          | maximum        | 60 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)   | maximum        | 0.8 oz.-in. | 0.6 oz.-in.      |

<sup>1</sup> Specifications subject to change without notice.

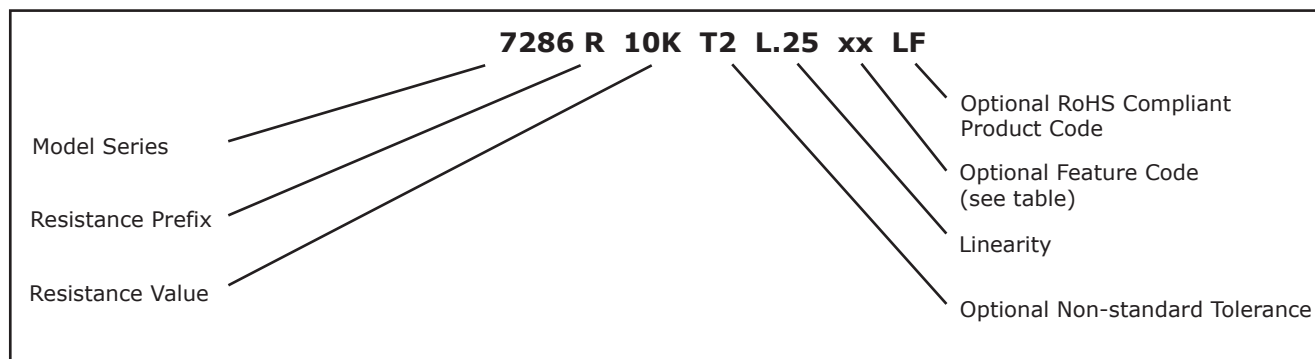
<sup>2</sup> Linearity is measured between 1% and 99% of input voltage.

# Model 7280

## ENVIRONMENTAL (MIL-PRF-12934)

|                                                |                                                                     |
|------------------------------------------------|---------------------------------------------------------------------|
| 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 7288) | 1M shaft revolutions + 900 hours at 2.0 Watts & 70°C, maximum 5% ΔR |
| Ingress Protection Rating (IP Code)            | IP40                                                                |

## ORDERING INFORMATION

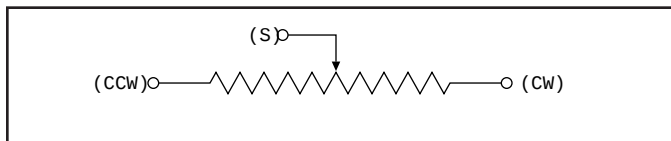


## FEATURE CODES

|                                                                        |    |
|------------------------------------------------------------------------|----|
| Center Tap                                                             | CT |
| Linearity Tape                                                         | LT |
| Flatted Shaft                                                          | FS |
| Slotted Shaft (standard on single cup 7286 & 7288 without RS feature)  | SS |
| Rear Shaft Extension (7281, 7286, 7288 single cup only)                | RS |
| Shaft Lock (7281, 7286, 7288 only)                                     | SL |
| High Torque 2-6 oz.-in. (7286 & 7288 only)                             | HT |
| Additional Gang                                                        | 2G |
| Gold Plated Solder Lug Terminals (see optional terminal configuration) | FT |

When multiple Feature Codes are used the P/N shall be in the same sequence as listed in this table (top to bottom).

## CIRCUIT DIAGRAM



## 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                     |
| 50K                     | 0.010                              | ±20                     |
| 100K                    | 0.008                              | ±20                     |

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# Model 7280

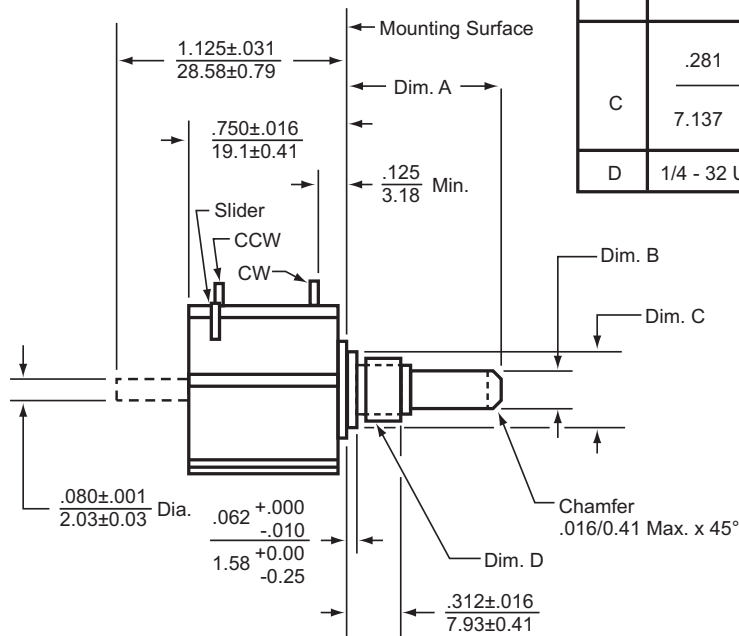
## MATCHING TURNS COUNTING DIALS

**7281: RBJ, 2601, 2641**

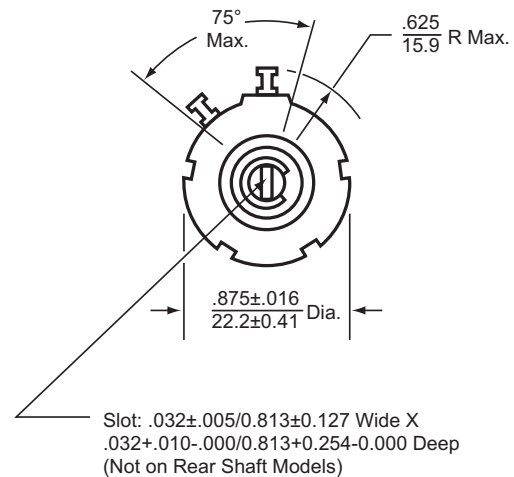
**7286, 7288: RB, 2126, 2606, 2606S, 2607, 2607S, 2626, 2627, 2646, 2646S, 2647, 2647S**

## OUTLINE DRAWINGS

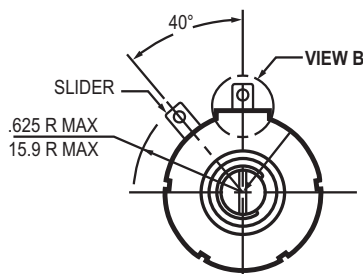
### Models 7281, 7284, 7286, & 7288 Bushing Mount with Sleeve Bearing



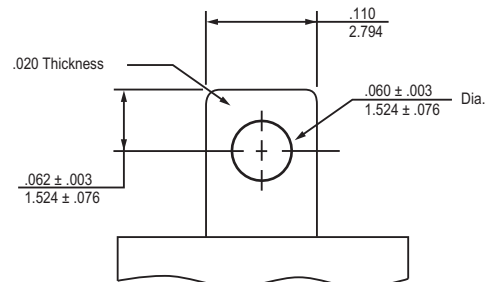
| Dim. | 7281                                                                                 | 7284                                                                                 | 7286 & 7288                                                                          |
|------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| A    | $\frac{.688 \pm .031}{17.475 \pm 0.787}$                                             | $\frac{.812 \pm .031}{20.625 \pm 0.787}$                                             | $\frac{.812 \pm .031}{20.625 \pm 0.787}$                                             |
| B    | $\frac{.1248}{3.1699} \begin{smallmatrix} +0.0000 \\ -0.0003 \end{smallmatrix}$ Dia. | $\frac{.2362}{6.0000} \begin{smallmatrix} +0.0000 \\ -0.0005 \end{smallmatrix}$ Dia. | $\frac{.2500}{6.3500} \begin{smallmatrix} +0.0000 \\ -0.0005 \end{smallmatrix}$ Dia. |
| C    | $\frac{.281}{7.137} \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$ Dia.     | $\frac{.406}{10.312} \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$ Dia.    | $\frac{.406}{10.312} \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}$ Dia.    |
| D    | 1/4 - 32 UNEF Thread                                                                 | 3/8 - 32 UNEF Thread                                                                 | 3/8 - 32 UNEF Thread                                                                 |



### Optional Terminal Configuration



Use Special Feature Code "FT" to order.



Enlarged View B

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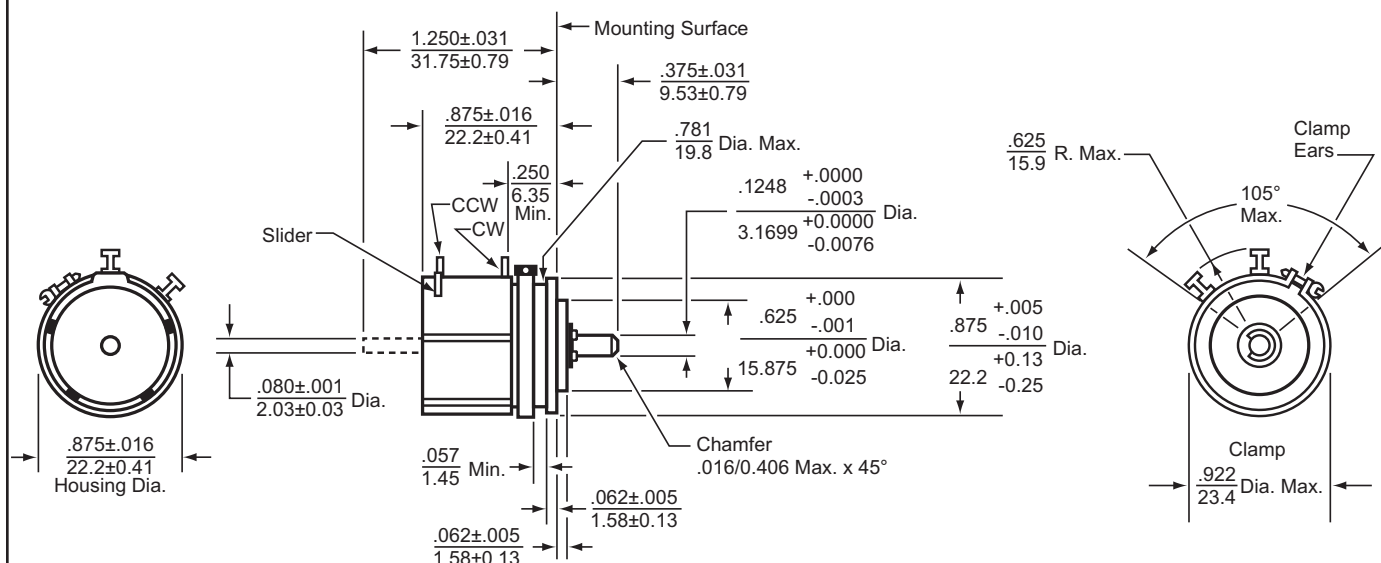
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# Model 7280

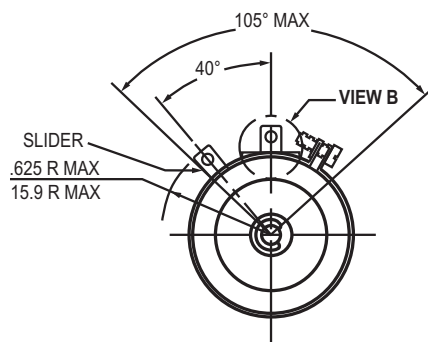
## OUTLINE DRAWINGS (continued)

## Model 7283

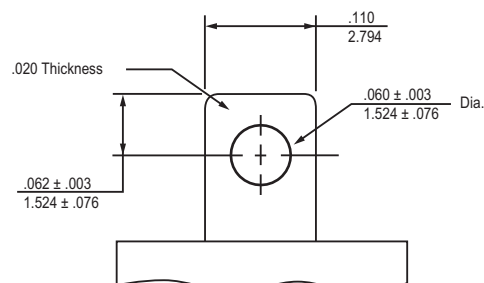
### Servo Mount with Ball Bearing



## Optional Terminal Configuration



**Use Special Feature Code "FT" to order.**



### Enlarged View B