

# Model 7280 Series

## Precision Potentiometer



### Features:

- Lead-free
- RoHS 2 compliant
- 7/8" diameter
- 10 turn wirewound



### Applications:

- Pedal position
- Joystick controls
- Valve control
- Wind vane
- Panel control
- Test and measurement
- Medical equipment
- Angular position

## 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

|                                         |                                                        |
|-----------------------------------------|--------------------------------------------------------|
| Resistance range                        | 100 to 100K ohms                                       |
| Standard resistance tolerance           | ±5%                                                    |
| Minimum practical resistance tolerance  | ±1%                                                    |
| Independent linearity                   | ±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°                                                    |

### General Note

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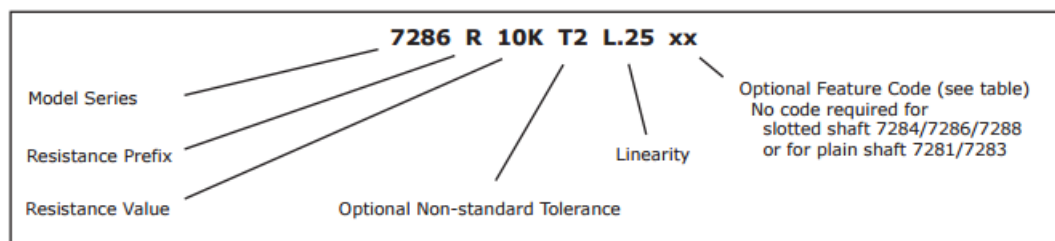
### Mechanical

|                                                         |                               |             |
|---------------------------------------------------------|-------------------------------|-------------|
| 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 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 0.8 oz.-in.           | 0.6 oz.-in. |

### 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 7288) | 1M shaft revolutions + 900 hours at 2.0 Watts & 70°C, maximum 5% ΔR |  |
| Ingress protection rating (IP Code)            | IP50, IP66 available as option (feature code ES)                    |  |

### Ordering Information



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### Feature Codes

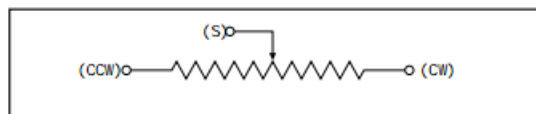
|                                                                             |         |
|-----------------------------------------------------------------------------|---------|
| 7281, 7283 plain shaft; 7284, 7286, 7288 slotted shaft                      | No code |
| Center tap                                                                  | CT      |
| Linearity tape                                                              | LT      |
| Flatted shaft                                                               | FS      |
| Slotted shaft (standard on single cup 7284, 7286 & 7288 without RS feature) | SS      |
| Rear shaft extension (7281, 7286, 7288 single cup only)                     | RS      |
| Shaft lock (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      |
| Seal (IP66) 7284, 7286, or 7288 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<br>(Ohms) | Theoretical Resolution<br>(% nominal) | Tempco of Wire<br>(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                        |

### Circuit Diagram



### Feature Codes

7281: RBJ, 2601, 2641

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

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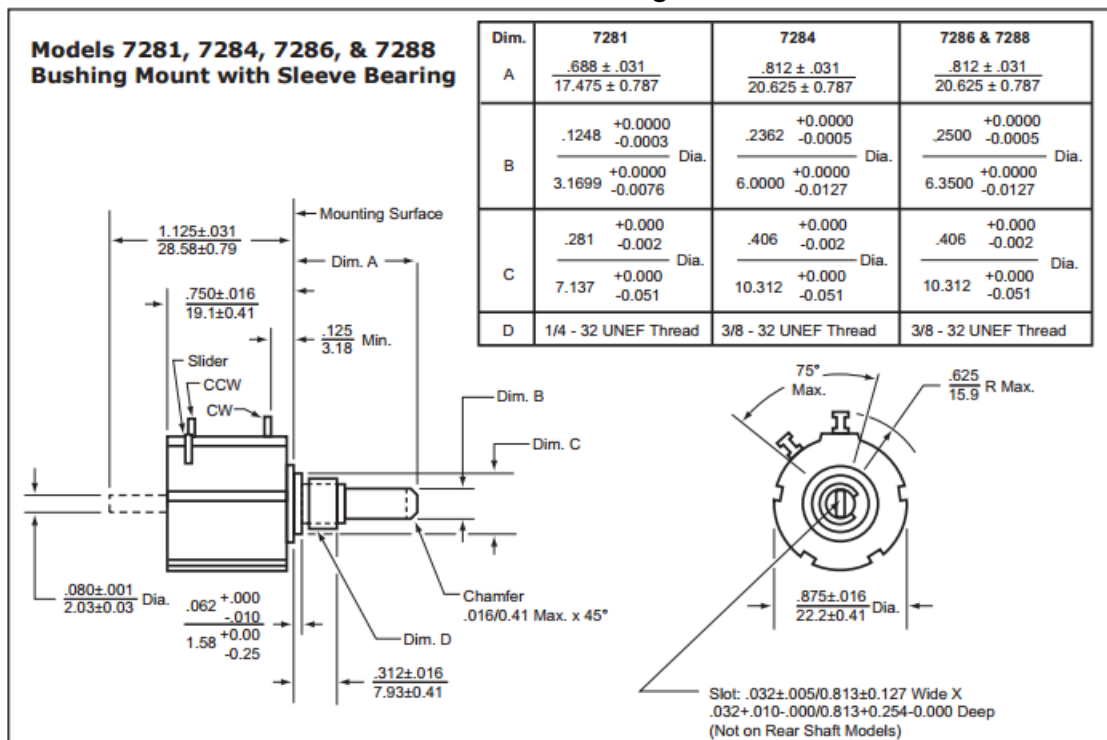
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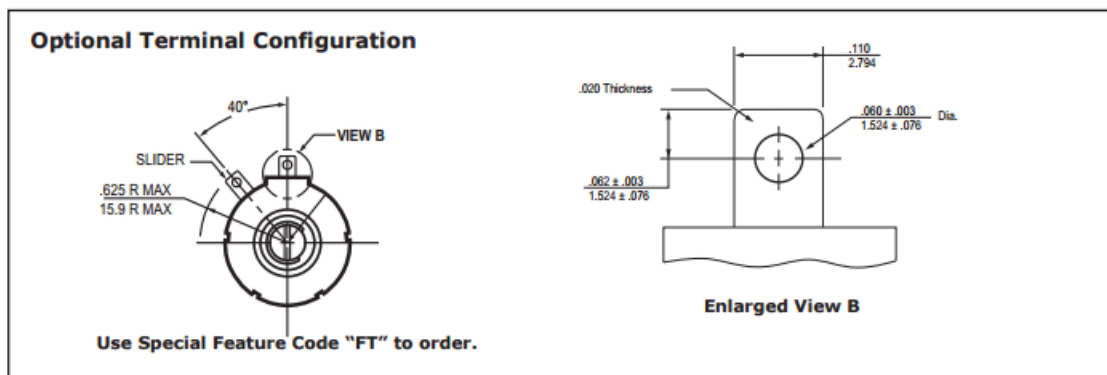
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## Outline Drawing



## Optional Terminal Configuration



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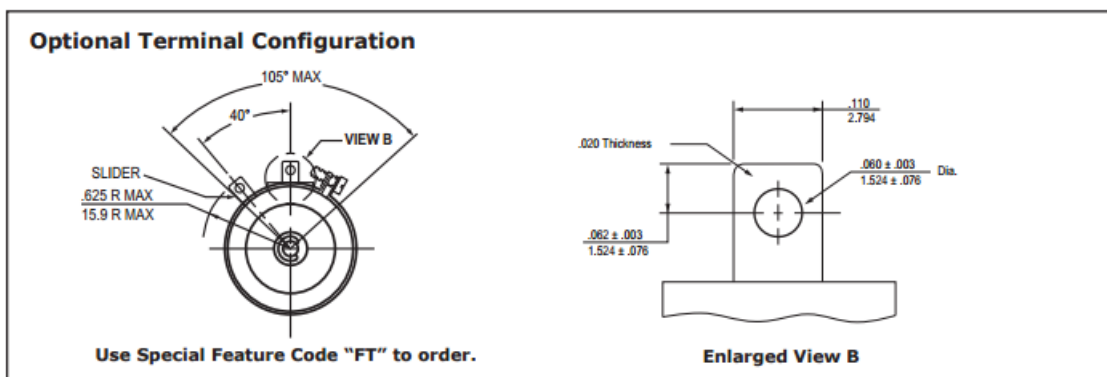
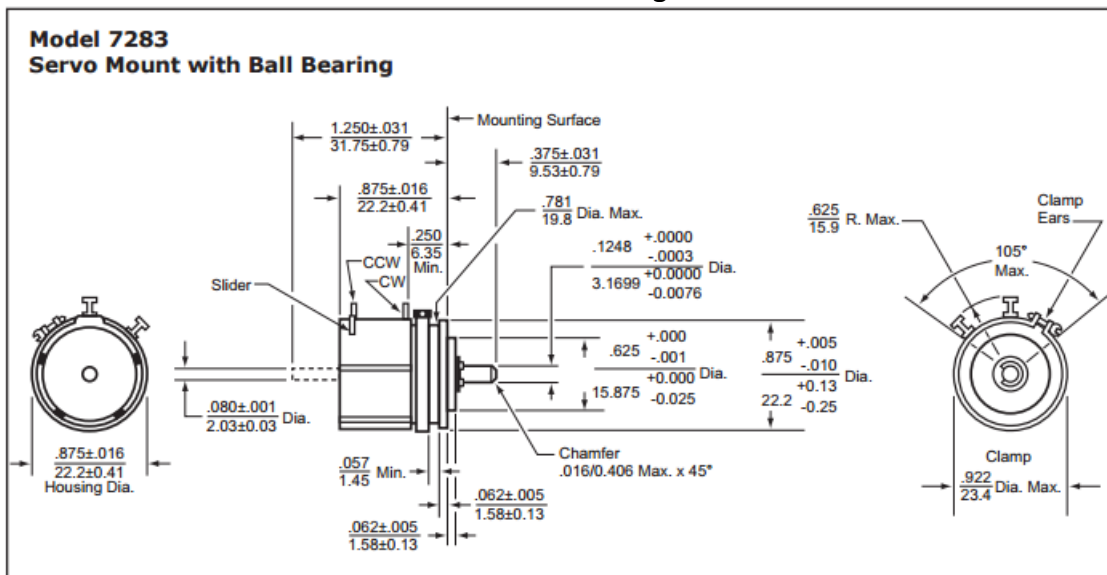
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