

MODEL 7280 SERIES

7/8" Diameter

10-Turn

Wirewound

Precision Potentiometer



2

MODEL STYLES

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

ELECTRICAL

| | |
|---|--|
| Resistance Range, Ohms | 100 to 100K |
| 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, 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°, > 100 Ohms 3600° + 10° - 5°, ≤ 100 Ohms |
| Tap Tolerance | ±3° |
| End Voltage, Maximum | 0.25% of input voltage |

Specifications subject to change without notice.

ENVIRONMENTAL (MIL-R-12934)

| | |
|--|---|
| Operating Temperature Range | Static: -55°C to +125°C Dynamic: -40°C to +125°C |
| Temperature Cycling | 5 cycles, -55°C to +125°C (5% ΔR) |
| Shock, 6ms Sawtooth | 100G's (0.1ms discontinuity max.) |
| Vibration | 15G's, 10 to 2,000 Hz (5% ΔR, 0.1ms discontinuity max.) |
| Moisture Resistance | Five 24 hour cycles (3% ΔR) |
| High Temperature Exposure | 1,000 hours at 125°C (5% ΔR) |
| Rotational Load Life | 1 mil. shaft rev. + 900 hrs. at rated wattage at 70°C (5% ΔR) |
| Rotational Life Model 7288 (1 pound Side Load) | 1 mil. shaft rev. + 900 hrs. at rated wattage at 70°C (5% ΔR) |

MECHANICAL

| | | |
|--|-------------------------|-------------|
| Total Mechanical Travel | 3600° + 15° - 0° | |
| Number of Gangs, Maximum | 2 | |
| Weight, Nominal (single gang) | 0.75 oz. | |
| Backlash, Maximum | 1° | |
| | 7281, 7284, 7286 | 7283 |
| Static Stop Strength | 60 oz.-in. | 36 oz.-in. |
| Panel Nut Tightening Torque, Maximum | 25 lb.-in. | N/A |
| Shaft End Play, Maximum | .010" | .005" |
| Shaft Runout, T.I.R., Maximum | .003" | .002" |
| Pilot Diameter Runout, T.I.R., Maximum | .004" | .002" |
| Lateral Runout, T.I.R., Maximum | .005" | .004" |
| Shaft Radial Play, Maximum | .003" | .002" |
| Start/Run Torque, Maximum (per gang) | 0.8 oz.-in. | 0.6 oz.-in. |

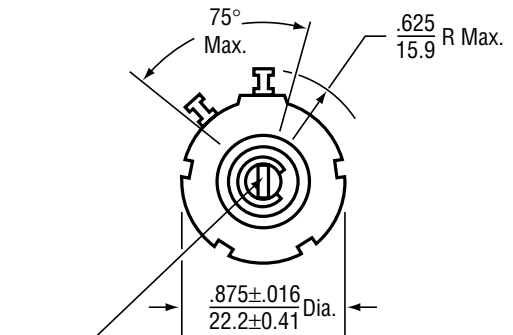
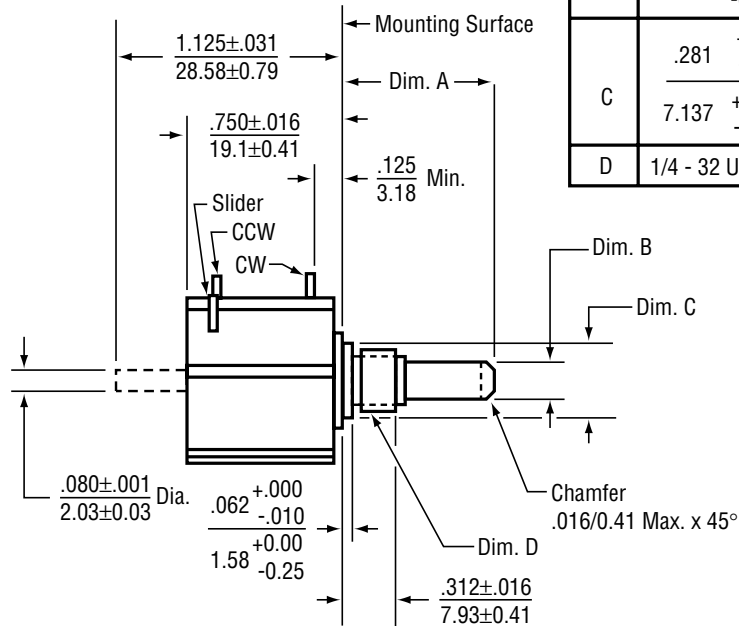
STANDARD RESISTANCE VALUES, OHMS

| Total Resistance | Theoretical Resolution (% Nominal) | Tempco of Wire |
|------------------|------------------------------------|----------------|
| 100 | 0.059 | ±20 ppm/°C |
| 200 | 0.037 | ±20 ppm/°C |
| 500 | 0.030 | ±20 ppm/°C |
| 1K | 0.024 | ±20 ppm/°C |
| 2K | 0.020 | ±20 ppm/°C |
| 5K | 0.018 | ±20 ppm/°C |
| 10K | 0.017 | ±20 ppm/°C |
| 20K | 0.016 | ±20 ppm/°C |
| 50K | 0.010 | ±20 ppm/°C |
| 100K | 0.008 | ±20 ppm/°C |

OUTLINE DIMENSIONS (Inch/mm)

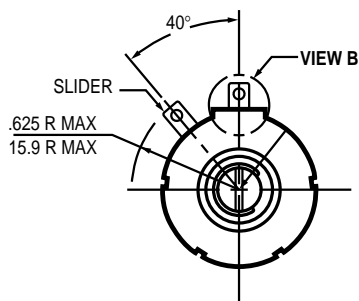
Models 7281, 7284 and 7286
Bushing Mount with Sleeve Bearing

| Dim. | 7281 | 7284 | 7286 |
|------|---|---|---|
| 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 | $\frac{.1248 \begin{smallmatrix} +0.0000 \\ -0.0003 \end{smallmatrix}}{3.1699 \begin{smallmatrix} +0.0000 \\ -0.0076 \end{smallmatrix}}$ Dia. | $\frac{.2362 \begin{smallmatrix} +0.0000 \\ -0.0005 \end{smallmatrix}}{6.0000 \begin{smallmatrix} +0.0000 \\ -0.0127 \end{smallmatrix}}$ Dia. | $\frac{.2500 \begin{smallmatrix} +0.0000 \\ -0.0005 \end{smallmatrix}}{6.3500 \begin{smallmatrix} +0.0000 \\ -0.0127 \end{smallmatrix}}$ Dia. |
| C | $\frac{.281 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}}{7.137 \begin{smallmatrix} +0.000 \\ -0.051 \end{smallmatrix}}$ Dia. | $\frac{.406 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}}{10.312 \begin{smallmatrix} +0.000 \\ -0.051 \end{smallmatrix}}$ Dia. | $\frac{.406 \begin{smallmatrix} +0.000 \\ -0.002 \end{smallmatrix}}{10.312 \begin{smallmatrix} +0.000 \\ -0.051 \end{smallmatrix}}$ Dia. |
| D | 1/4 - 32 UNEF Thread | 3/8 - 32 UNEF Thread | 3/8 - 32 UNEF Thread |

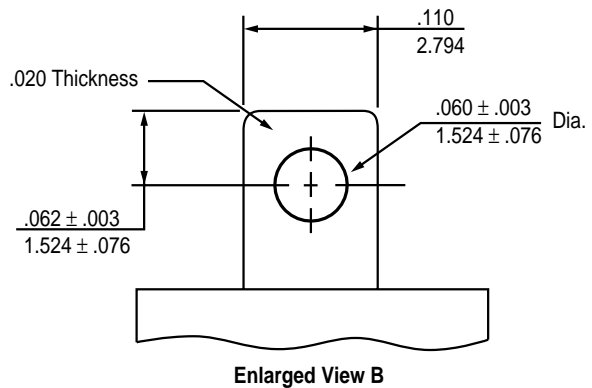


Slot: .032±.005/0.813±0.127 Wide X
.032+.010-.000/0.813+0.254-0.000 Deep
(Not on Rear Shaft Models)

OPTIONAL TERMINAL CONFIGURATION

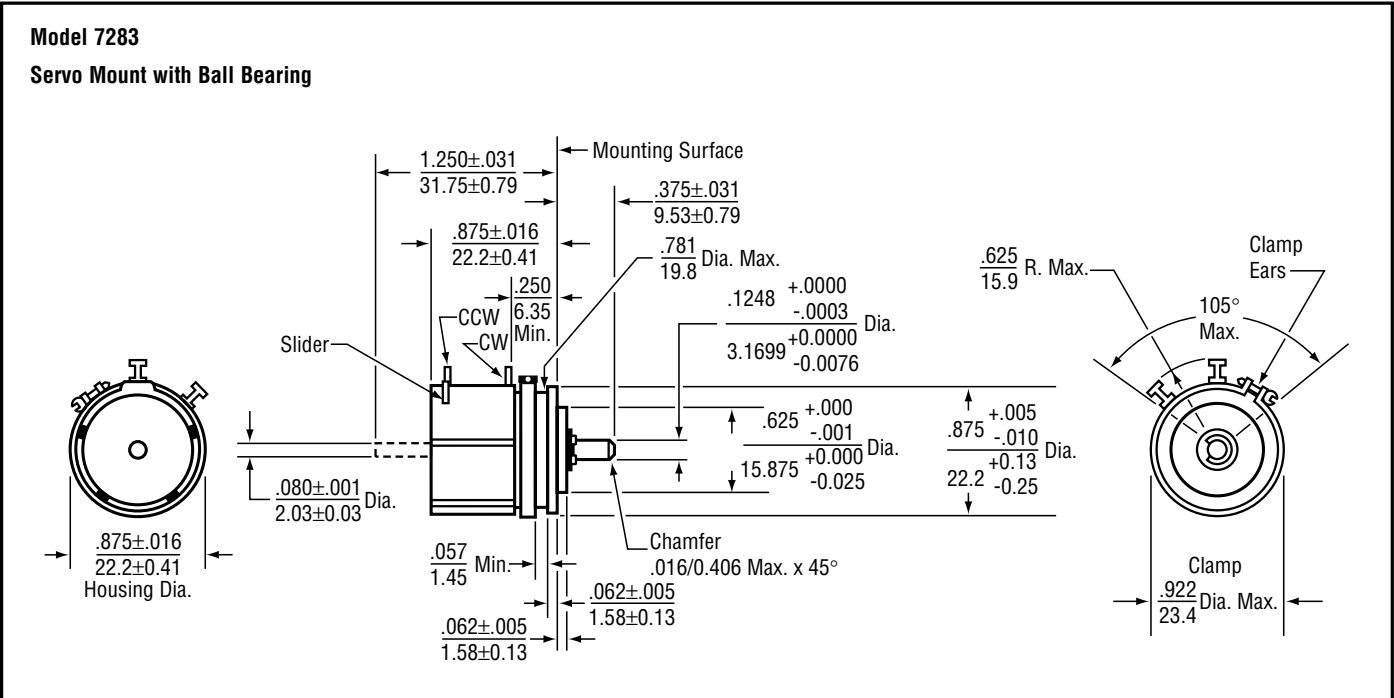


Use Special Feature Code "FT" to order.

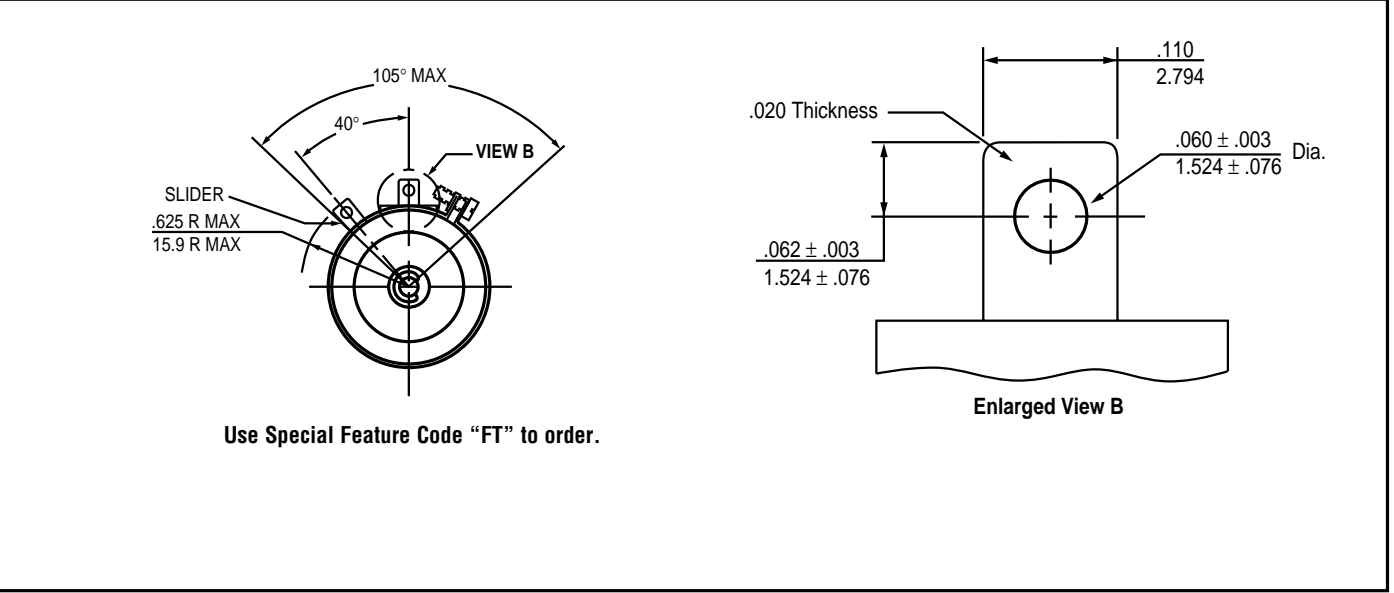


Enlarged View B

OUTLINE DIMENSIONS (Inch/mm)



OPTIONAL TERMINAL CONFIGURATION



METRIC CONVERSIONS

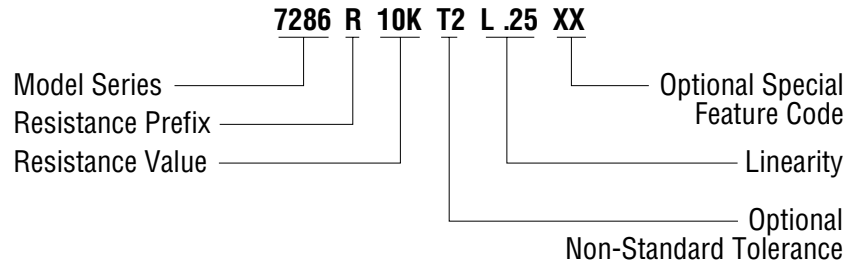
| | | | |
|-------|---------|-----------|-----------|
| 1 in. | 25.4 mm | 1 oz.-in. | 0,007 N-m |
| 1 oz. | 28.4 gm | 1 lb.-in. | 0,113 N-m |

SPECIAL FEATURES

| | |
|--|----|
| Center Tap | CT |
| Linearity Tape | LT |
| Rear Shaft Extension (7283, 7286 single cup only) | RS |
| Flatted Shaft | FS |
| Slotted Shaft (Standard on single cup 7286 without RS) | SS |
| Shaft Lock (7281, 7286 only) | SL |
| High Torque, 2–6 oz.-in. (7286 only) | HT |
| Additional Gangs | 2G |
| Gold Plated Solder Lug Terminals (See Optional Terminal Configuration) | FT |

2

ORDERING INFORMATION

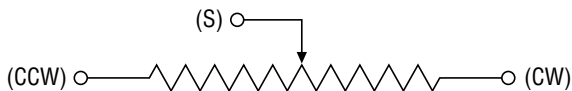


MATCHING TURNS COUNTING DIALS

7281: RBJ, 2601, 2641

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

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

