

1/2" (12.7 mm) Single - Turn Wirewound Bushing Mount Type Precision Potentiometer



FEATURES

- Ohmic value range: 50 Ω up to 20 k Ω
- Smallest size available: 12.7 mm
- Mechanical stops on request
- High torque and sealed versions available
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

QUICK REFERENCE DATA

| | |
|------------------|-----------------------------------|
| Sensor type | ROTATIONAL, single turn wirewound |
| Output type | Output by turrets |
| Market appliance | Professional |
| Dimensions | 1/2" (12.7 mm) |

ELECTRICAL SPECIFICATIONS

| PARAMETER | |
|-----------------------------|--|
| Total Resistance | 50 Ω to 20 k Ω |
| Tolerance | $\pm 5\%$ |
| Absolute Minimum Resistance | Linearity x total resistance or 0.5 Ω , whichever is greater |
| Linearity (Independent) | $\pm 1.0\%$ |
| Noise | 100 Ω ENR |
| Power Rating | 2 W at 40 $^{\circ}\text{C}$ ambient derating linearly to zero at 125 $^{\circ}\text{C}$ |
| Insulation Resistance | 1000 M Ω min. 500 V _{DC} |
| Dielectric Strength | 1000 V _{RMS} , 60 Hz |
| Electrical Angle | 320 $^{\circ} \pm 5^{\circ}$ |
| End Voltage | Linearity x total applied voltage for total resistance above 20 Ω ; 2.0 % of total applied voltage for 20 Ω and below |

MATERIAL SPECIFICATIONS

| | |
|---|---|
| Shaft | Stainless steel, non magnetic non-passivated |
| Housing | Aluminum, anodized |
| Rear Lid | Molded glass filled thermoset plastic |
| Terminals | Brass, gold plated |
| Mounting Hardware Lockwasher Internal Tooth: Panel Nut: | Steel, nickel plated. Brass, nickel plated |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-------------------|---|
| Vibration | 20 g thru 2000 Hz |
| Shock | 50 g |
| Salt Spray | 96 h |
| Rotational Life | 500 000 shaft revolutions |
| Load Life | 900 h |
| Temperature Range | - 55 $^{\circ}\text{C}$ to + 125 $^{\circ}\text{C}$ (operating) |

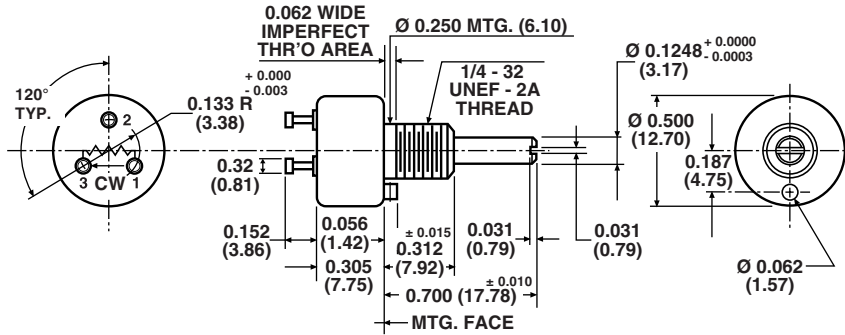
ORDERING INFORMATION/DESCRIPTION

| 140B | 0 | 0 | 20K | BO10 |
|-------|---|---|-------------|------------------|
| MODEL | MECHANICAL OPTIONS | SPECIAL FEATURE | OHMIC VALUE | PACKAGING |
| | 0. Stops, slotted shaft (std) 1. Plain shaft 2. Shaft lock 3. Continuous rotation 4. Combination 1 and 2 5. Combination 1 and 3 6. Combination 2 and 3 7. Combination 1, 2 and 3 | 0. Standard torque 1. Center tap (10K max. R _i) 2. High torque 3. Sealed construction 4. Combination 1 and 2 5. Combination 1 and 3 6. Combination 2 and 3 7. Combination 1, 2 and 3 | | Box of 10 pieces |

SAP PART NUMBERING GUIDELINES

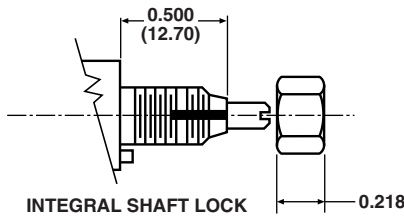
| 140B | 7 | 0 | 103 | B10 |
|-------|-------------------|-------------|-------------|------------------|
| MODEL | MECHANICAL OPTION | FEATURE | OHMIC VALUE | PACKAGING |
| | From 0 to 7 | From 0 to 7 | 103 = 10K | Box of 10 pieces |

DIMENSIONS in inches (millimeters)

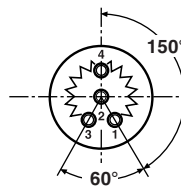


MODEL 140B/140-...

SHAFT LOCK OPTION



CENTER TAP OPTION

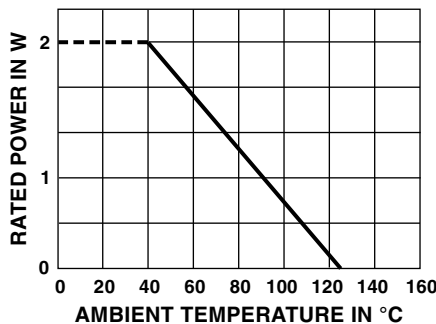


TOLERANCES: UNLESS OTHERWISE NOTED.
DECIMALS ± 0.005 ANGLES ± 2°

CENTER TAP AVAILABLE AS SPEC STANDARD FEATURE

| MECHANICAL SPECIFICATIONS | |
|---------------------------|----------------------------------|
| PARAMETER | |
| Rotation | 330° ± 5° |
| Bearing Type | SLEEVE BEARING |
| Torque (maximums) | |
| Starting | 0.2 oz. - in (14.40 g - cm) |
| Running | 0.2 oz. - in (14.40 g - cm) |
| Dead Zone | Not applicable |
| Weight | 0.1 oz. maximum (2.84 g) |
| Stop Strength | 5 in - lbs (5.76 kg - cm) static |
| Runouts (maximum) | |
| Shaft (TIR) | 0.002" (0.05 cm) |
| Pilot Dia. (TIR) | 0.002" (0.05 cm) |
| Lateral (TIR) | 0.003" (0.08 cm) |
| Shaft End Play | 0.006" (0.15 cm) |
| Shaft Radial Play | 0.003" (0.08 cm) |

POWER RATING CHART



RESISTANCE ELEMENT DATA

| STD RESISTANCE VALUES (Ω) | RESOLUTION (%) | OHMS PER TURN | MAXIMUM CURRENT AT 40 °C AMBIENT (mA) | MAXIMUM VOLTAGE ACROSS COIL (V) | WIRE TEMP. COEF. (ppm/°C) |
|---------------------------|----------------|---------------|---------------------------------------|---------------------------------|---------------------------|
| 50 | 0.542 | 0.271 | 200.0 | 10.0 | 20 |
| 100 | 0.431 | 0.431 | 141.0 | 14.1 | 20 |
| 200 | 0.361 | 0.722 | 100.0 | 20.0 | 20 |
| 500 | 0.312 | 1.56 | 63.2 | 31.6 | 20 |
| 1K | 0.255 | 2.55 | 44.7 | 44.7 | 20 |
| 2K | 0.197 | 3.94 | 31.6 | 63.2 | 20 |
| 5K | 0.170 | 8.50 | 20.0 | 100.0 | 20 |
| 10K | 0.147 | 14.7 | 14.1 | 141.0 | 20 |
| 20K | 0.105 | 21.0 | 10.0 | 200.0 | 20 |

MARKING

| | |
|----------------------------|--|
| Unit Identification | Units shall be marked with manufacturer's name, model number, resistance value and tolerance, circuit diagram, terminal identification, linearity and data code. Example of a marking for a standard part: 140-1-2-103 |
|----------------------------|--|



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