

## 7/8" (22.2 mm) Precision Industrial Potentiometer, Bushing And Servo Mount Versions, Conductive Plastic


**FEATURES**

- High quality
- Rugged one piece metal housing
- Long rotational life
- Wide operating temperature range
- Linearities down to  $\pm 0.25\%$  special
- Optional sealed construction (bushing mount only)
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

**QUICK REFERENCE DATA**

|                  |                                |
|------------------|--------------------------------|
| Sensor type      | ROTATIONAL, conductive plastic |
| Output type      | Output by turrets              |
| Market appliance | Industrial                     |
| Dimensions       | 7/8" (22.2 mm)                 |

**ELECTRICAL SPECIFICATIONS**

| PARAMETER                             | MIL-PRF-39023 TEST PROCEDURES APPLY         |
|---------------------------------------|---|
| Resistance                            | 1 k $\Omega$ to 100 k $\Omega$              |
| Resistance Tolerance                  | $\pm 20\%$                                  |
| Special to                            | $\pm 10\%$                                  |
| Linearity                             | $\pm 2.0\%$                                 |
| Special to                            | $\pm 0.25\%$                                |
| Temperature Coefficient of Resistance | $\pm 600$ ppm/ $^{\circ}$ C                 |
| Power Rating                          | 1.0 W at 40 $^{\circ}$ C ambient            |
| Derated to                            | 0 W at 125 $^{\circ}$ C                     |
| Electrical Angle                      | 340 $^{\circ}$ $\pm$ 4 $^{\circ}$           |
| End Voltage                           | 0.5 % maximum                               |
| Dielectric Withstanding               | 1000 V <sub>RMS</sub> , 60 Hz               |
| Insulation Resistance                 | 100 M $\Omega$ minimum, 500 V <sub>DC</sub> |
| Output Smoothness                     | 0.1 %                                       |

**MECHANICAL SPECIFICATIONS**

| PARAMETER                              |                                  |                              |
|--|----------------------------------|------------------------------|
| Weight                                 | 0.5 oz. maximum (14 g)           |                              |
| Rotation                               | 360 $^{\circ}$ (continuous)      |                              |
| Mount Bearing Type                     | <b>BUSHING</b><br>Sleeve bearing | <b>SERVO</b><br>Ball bearing |
| Operating Torque                       |                                  |                              |
| Starting                               | 0.30 oz. - in (21.6 g - cm)      | 0.25 oz. - in (18 g - cm)    |
| Running                                | 0.25 oz. - in (18 g - cm)        | 0.15 oz. - in (10.8 g - cm)  |
| Mechanical Tolerance (in/mm) (maximum) |                                  |                              |
| Shaft Runout (TIR)                     | 0.002" (0.05 mm)                 | 0.002" (0.05 mm)             |
| Pilot Dia Runout (TIR)                 | -                                | 0.002" (0.05 mm)             |
| Lateral Runout (TIR)                   | 0.005" (0.13 mm)                 | 0.002" (0.05 mm)             |
| Shaft End Play                         | 0.006" (0.15 mm)                 | 0.005" (0.13 mm)             |
| Shaft Radial Play                      | 0.003" (0.08 mm)                 | 0.002" (0.05 mm)             |

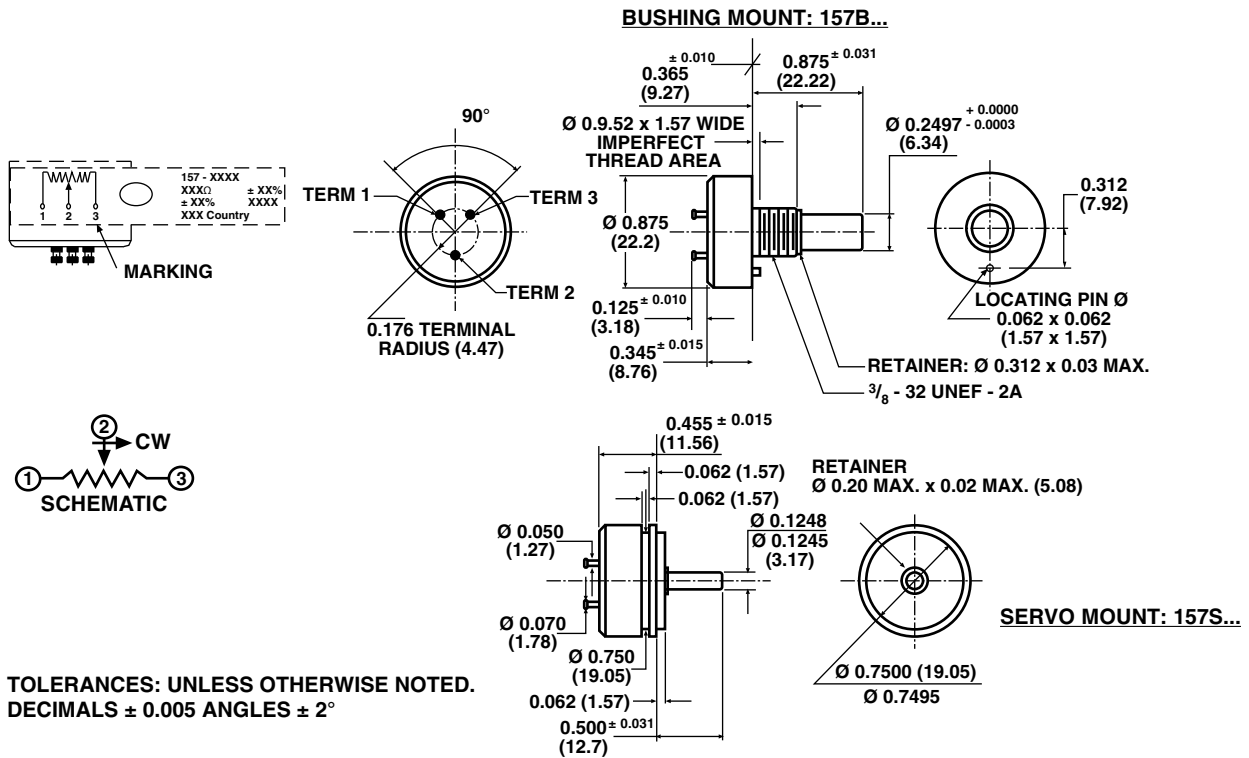
**ORDERING INFORMATION/DESCRIPTION**

| 157   | B                        | 50K         | 20 %                     | C               | BO10             |
|-------|--------------------------|-------------|--------------------------|-----------------|------------------|
| MODEL | MOUNTING                 | OHMIC VALUE | TOLERANCE ON OHMIC VALUE | LINEARITY       | PACKAGING        |
|       | B = Bushing<br>S = Servo |             |                          | C: $\pm 0.25\%$ | Box of 10 pieces |

## SAP PART NUMBERING GUIDELINES

| 157   | S     | 502         | M                        | X            | B10              |
|-------|-------|-------------|--------------------------|--------------|------------------|
| MODEL | STYLE | OHMIC VALUE | TOLERANCE ON OHMIC VALUE | LINEARITY    | PACKAGING        |
|       |       | 502 = 5K    | M: $\pm 20\%$            | X: $\pm 2\%$ | Box of 10 pieces |

## DIMENSIONS in inches (millimeters)



## MATERIAL SPECIFICATIONS

|                        |   |
|------------------------|---|
| Housing/Bushing        | Aluminum, anodized                              |
| Rear Lid               | Ceramic   |
| Shaft                  | Stainless steel                                 |
| Terminals              | Solderable                                      |
| Bushing Mount Hardware | Lockwasher, internal tooth steel, nickel plated |
| Panel Nut              | Brass, nickel plated                            |

## ENVIRONMENTAL SPECIFICATIONS

|                    |   |  |
|--------------------|---|--|
| Temperature        | - 55 °C + 125 °C                              |  |
| Rotational Life    | <b>BUSHING</b><br>5 million shaft revolutions | <b>SERVO</b><br>10 million shaft revolutions |
| Moisture Resistant | Yes   |  |
| Vibration          | 15 g 10 to 2000 Hz                            |  |
| Shock              | 50 g  |  |
| Salt Spray         | 96 h  |  |
| Load Life          | 900 h   |  |



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