

## 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/doc299912](http://www.vishay.com/doc299912)


**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<br>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

|       |   |                        |   |                                                                                                  |   |                          |   |                                           |  |                 |  |  |
|-------|---|------------------------|---|--------------------------------------------------------------------------------------------------|---|--------------------------|---|-------------------------------------------|--|-----------------|--|--|
| 1     | 5 | 7                      | B | 5                                                                                                | 0 | 3                        | M | C                                         |  |                 |  |  |
| MODEL |   | STYLE                  |   | OHMIC VALUE                                                                                      |   | TOLERANCE ON OHMIC VALUE |   | LINEARITY                                 |  | SPECIAL REQUEST |  |  |
| 157   |   | B: Bushing<br>S: servo |   | 470 = 47 Ω<br>222 = 2.200 Ω<br>103 = 10 kΩ<br>For ohmic value range see electrical specification |   | M = ± 20 %<br>K = ± 10 % |   | X = ± 2 %<br>B = ± 0.50 %<br>C = ± 0.25 % |  | xxxx            |  |  |

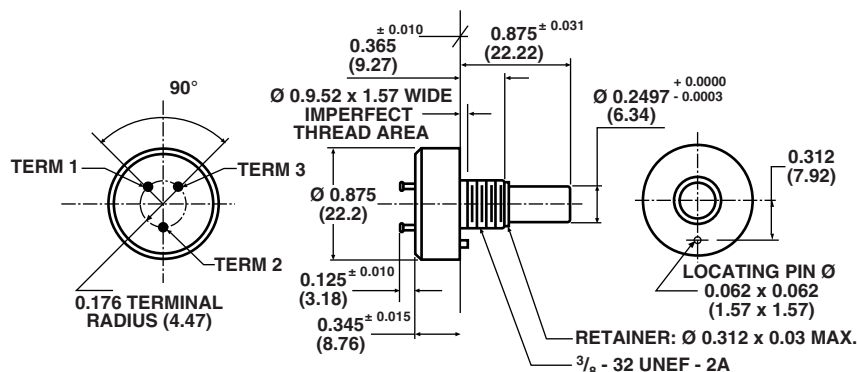
**PART NUMBER DESCRIPTION** (for information only)

|       |       |             |         |
|-------|-------|-------------|---------|
| 157-  | 2     | 503         | xxxx    |
| MODEL | STYLE | OHMIC VALUE | SPECIAL |

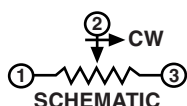
B: 1  
S: 2

**DIMENSIONS** in inches (millimeters)

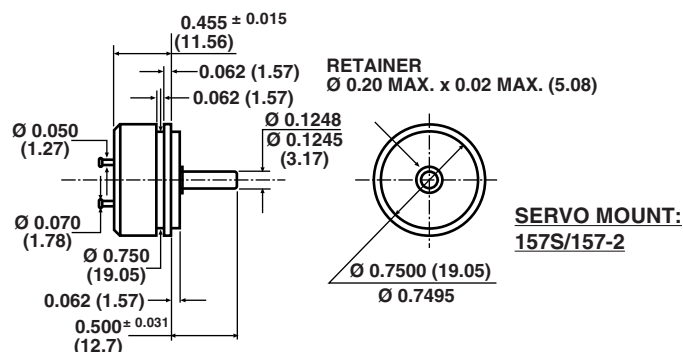
**BUSHING MOUNT: 157B/157-1**



**Example of a marking for a standard part:**  
**157-11103**



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



**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 to +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                                         |                                              |

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability.



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