

## 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 %                                       |

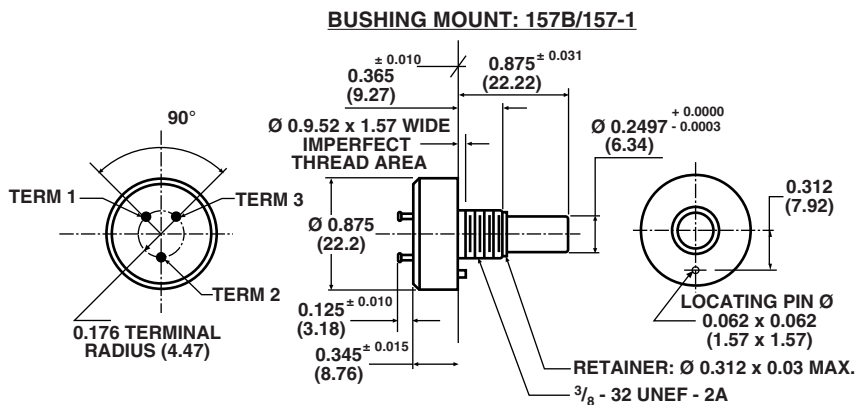
### MECHANICAL SPECIFICATIONS

| PARAMETER                              |                             |                             |
|--|-----------------------------|-----------------------------|
| Weight                                 | 0.5 oz. maximum (14 g)      |                             |
| Rotation                               | 360 $^{\circ}$ (continuous) |                             |
| Mount                                  | <b>BUSHING</b>              | <b>SERVO</b>                |
| Bearing Type                           | Sleeve bearing              | 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)            |

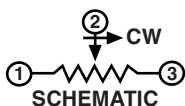
| ORDERING INFORMATION |                        |   |  |   |   |                          |   |   |  |                 |
|----------------------|------------------------|---|--|---|---|--------------------------|---|---|--|-----------------|
| 1                    | 5                      | 7 | B  | 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<br>S: 2 |             |         |

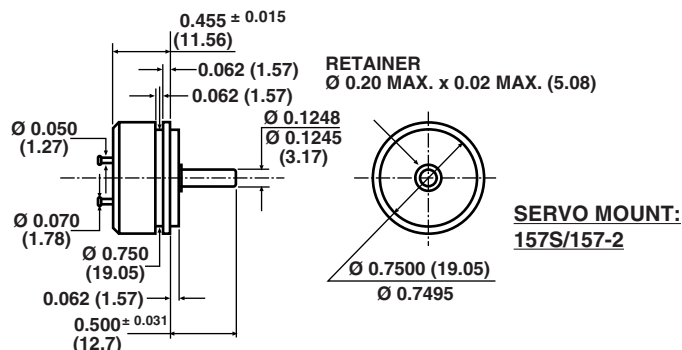
**DIMENSIONS** in inches (millimeters)



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              | <table border="1"> <thead> <tr> <th>BUSHING</th> <th>SERVO</th> </tr> </thead> <tbody> <tr> <td>5 million shaft revolutions</td> <td>10 million shaft revolutions</td> </tr> </tbody> </table> | BUSHING | SERVO | 5 million shaft revolutions | 10 million shaft revolutions |
| BUSHING                      | SERVO  |         |       |                             |                              |
| 5 million shaft revolutions  | 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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