

## Industrial Rotary Position Sensor Bushings Mount Type, Conductive Plastic


**FEATURES**

- Fully sealed for high immunity to environmental damage
- Excellent temperature stability
- Rotational life exceeds 2 million revolutions
- Low cost and wide range of options
- Stainless steel shaft
- Shock to 30 g vibration to 15 g at 10 Hz to 2000 Hz

**QUICK REFERENCE DATA**

|                  |                                |
|------------------|--------------------------------|
| Sensor type      | ROTATIONAL, conductive plastic |
| Output type      | Output by turrets              |
| Market appliance | Industrial                     |
| Dimensions       | 15.81 mm x 17.46 mm            |

**ELECTRICAL SPECIFICATIONS**

| PARAMETER               |                                       |
|-------------------------|---------------------------------------|
| Standard resistance     | 1 kΩ to 100 kΩ                        |
| Capability range        | 200 kΩ                                |
| Resistance tolerance    | ± 20 %                                |
| Linearity               | ± 2 %                                 |
| Power rating            | 1.0 W at 85 °C                        |
| Electrical travel       | 240° ± 4°                             |
| Dielectric withstanding | 500 V <sub>RMS</sub> at 60 Hz minimum |
| Output smoothness       | 0.2 % maximum                         |

**MECHANICAL SPECIFICATIONS**

| PARAMETER           |                                |
|---------------------|--------------------------------|
| Bearing type        | Sleeve                         |
| Mechanical rotation | 250° ± 2°                      |
| Stop strength       | 10 in - lb minimum, 11.5 kg/cm |
| Starting torque     | 3.0 o.z - in maximum, 216 g/cm |
| Running torque      | 3.0 oz. - in maximum, 216 g/cm |

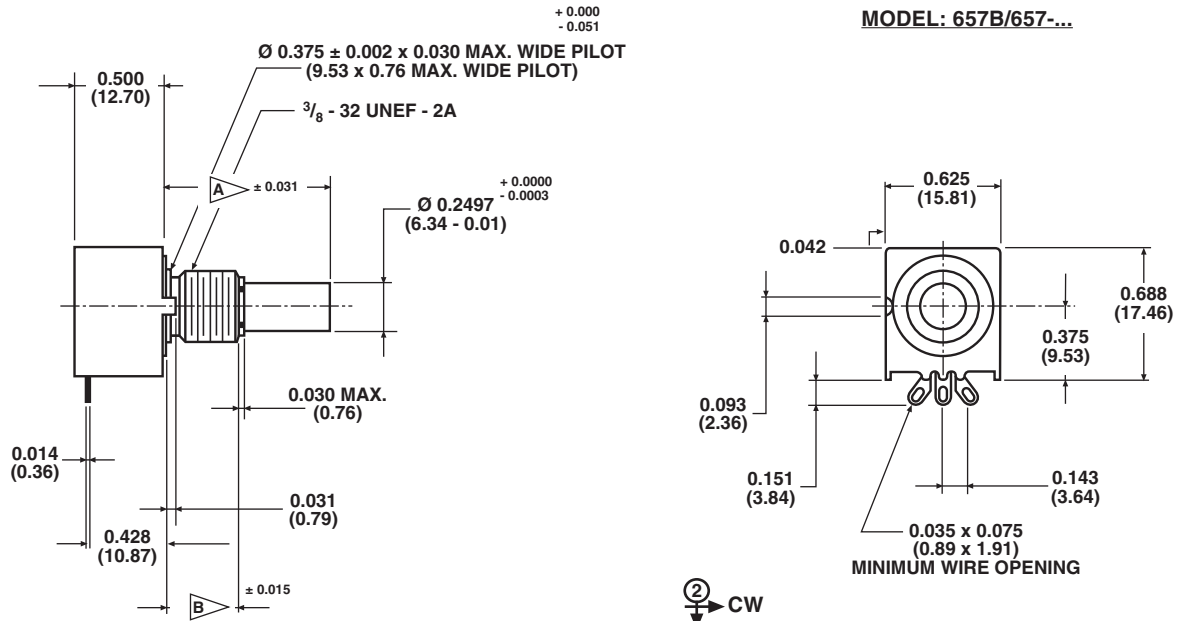
**ORDERING INFORMATION/DESCRIPTION**

| 657   | B                  | F                                      | 0  |  |  | 50 kΩ            | B10              |
|-------|--------------------|--|--|--|--|------------------|------------------|
| MODEL | STYLE              | SHAFT OPTIONS                          | SHAFT BUSHING OPTIONS  |  |  | TOTAL RESISTANCE | PACKAGING        |
|       | <b>B</b> : Bushing | <b>R</b> - Round<br><b>F</b> - Flatted | Shaft length<br><b>0</b> - 0.875" FMS<br><b>1</b> - 0.625" FMS<br><b>2</b> - 1.000" FMS<br><b>3</b> - 1.250" FMS | Bushing length<br>0.375" FMS<br>0.250" FMS<br>0.500" FMS<br>0.750" FMS | Flat<br>0.440"<br>0.315"<br>0.440"<br>0.440" |                  | Box of 10 pieces |

**SAP PART NUMBERING GUIDELINES**

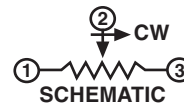
| 657B  | R                | 1                         | 103         | BO10      |
|-------|------------------|---------------------------|-------------|-----------|
| MODEL | END SHAFT        | SHAFT AND BUSHING OPTIONS | OHMIC VALUE | PACKAGING |
|       | <b>R</b> : Round | (see above)               |             |           |

## DIMENSIONS in inches (millimeters)

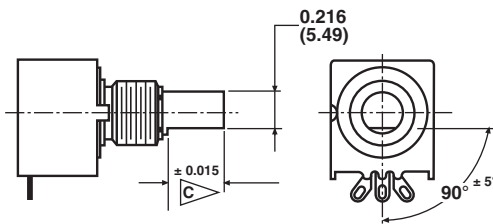


MODEL: 657B/657-...

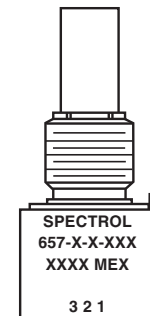
DECIMALS: XX ± 0.01 INCHES (± 0.25 mm)  
XX ± 0.005 INCHES (± 0.13 mm) ANGLES: ± 2°



### SHAFT FLAT AND PHASING DIAGRAM



WITH SHAFT FLAT POSITIONED AS SHOWN, OUTPUT RATIO  
TO BE e/E = 0.50 ± 0.02



### STANDARD RESISTANCE VALUES

| CODE | RESISTANCE (Ω) |
|------|----------------|
| 102  | 1K             |
| 202  | 2K             |
| 502  | 5K             |
| 103  | 10K            |
| 203  | 20K            |
| 503  | 50K            |
| 104  | 100K           |

### MATERIAL SPECIFICATIONS

|         |   |
|---------|---|
| Shaft   | Stainless steel                         |
| Bushing | Nickel plated brass                     |
| Housing | Thermoplastic                           |
| Element | Conductive plastic on alumina substrate |

### ENVIRONMENTAL SPECIFICATIONS

|                               |   |
|-------------------------------|---|
| Rotational life               | 2 million revolutions   |
| Vibration                     | 15 g at 10 Hz to 2000 Hz  |
| Operating temperature         | -40 °C to +125 °C   |
| Storage temperature           | -55 °C to +150 °C   |
| Temperature coefficient       | ± 600 ppm/°C  |
| Shock                         | 30 g  |
| Resistant to solder heat      | 350 °C for 5 s  |
| Moisture resistance IP rating | Sealed construction<br>IP67* application to provide protection for wiring terminals |

#### Note

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

### MARKING

|                     |  |
|---------------------|--|
| Unit identification | Vishay Spectrol, part number, data code, country of origin and terminal designation. Example of a marking for a standard part: 657-2-0-102 |
|---------------------|--|



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