

# 1 5/16" (33.3 mm) Low Cost Industrial Single Turn Wirewound, Bushing Mount Type Potentiometer



## FEATURES

- Suitable model for all industrial applications
- Center tap available
- Continuous rotation and mechanical stops both standard
- Large electrical angle:  $352^\circ \pm 2^\circ$
- 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, single turn wirewound |
| Output type      | Output by turrets                 |
| Market appliance | Industrial                        |
| Dimensions       | 1 5/16" (33.3 mm)                 |

## ELECTRICAL SPECIFICATIONS

| PARAMETER                             | MIL-PRF-12934 TEST PROCEDURES APPLY                                              |                  |
|---------------------------------------|----------------------------------------------------------------------------------|------------------|
|                                       | STANDARD                                                                         | SPECIAL          |
| Total Resistance                      | 5 $\Omega$ to 20 k $\Omega$                                                      | to 35 k $\Omega$ |
| Tolerance: 50 $\Omega$ and Above      | $\pm 3\%$                                                                        | $\pm 1\%$        |
| Below 50 $\Omega$                     | $\pm 5\%$                                                                        | $\pm 3\%$        |
| Linearity (independent)               |                                                                                  | BEST PRACTICAL   |
| Total Resistance                      |                                                                                  |                  |
| 5 $\Omega$ to 20 $\Omega$             | $\pm 1.0\%$                                                                      | $\pm 0.75\%$     |
| 20 $\Omega$ to 200 $\Omega$           | $\pm 1.0\%$                                                                      | $\pm 0.50\%$     |
| 200 $\Omega$ and above                | $\pm 0.5\%$                                                                      | $\pm 0.25\%$     |
| Noise                                 | 100 $\Omega$ ENR                                                                 |                  |
| Power Rating                          | 40 $^\circ\text{C}$ ambient<br>2.75 W<br>derated to zero at 125 $^\circ\text{C}$ |                  |
| Electrical Angle                      |                                                                                  |                  |
| Continuous Rotation                   | $352^\circ \pm 2^\circ$                                                          |                  |
| Stops                                 | $340^\circ \pm 5^\circ$                                                          |                  |
| Insulation Resistance                 | 1000 M $\Omega$ minimum at 500 V <sub>DC</sub>                                   |                  |
| Dielectric Strength                   | 1000 V <sub>RMS</sub> , 60 Hz                                                    |                  |
| Absolute Minimum Resistance           | 1.0 % of total resistance or 0.5 W whichever is greater                          |                  |
| Minimum Voltage                       | 0.5 % maximum                                                                    |                  |
| Temperature Coefficient of Resistance | Refer to standard resistance element data                                        |                  |

## MATERIAL SPECIFICATIONS

|                            |                                                 |
|----------------------------|-------------------------------------------------|
| Housing                    | Molded glass filled thermoplastic               |
| Rear Lid                   | Glass filled thermoset plastic                  |
| Shaft                      | Stainless steel, non-magnetic                   |
| Terminals                  | Brass, plated for solderability, Non-passivated |
| Mount Hardware             |                                                 |
| Lockwasher Internal Tooth: | Steel, nickel plated                            |
| Panel Nut:                 | Brass, nickel plated                            |

## ENVIRONMENTAL SPECIFICATIONS

|                             |                                                 |
|-----------------------------|-------------------------------------------------|
| Vibration                   | 15 g thru 2000 Hz                               |
| Shock                       | 50 g                                            |
| Salt Spray                  | 48 h                                            |
| Rotational Life             |                                                 |
| Shaft Revolutions           | 500 000                                         |
| Operating Temperature Range | - 55 $^\circ\text{C}$ to + 125 $^\circ\text{C}$ |

## ORDERING INFORMATION/DESCRIPTION

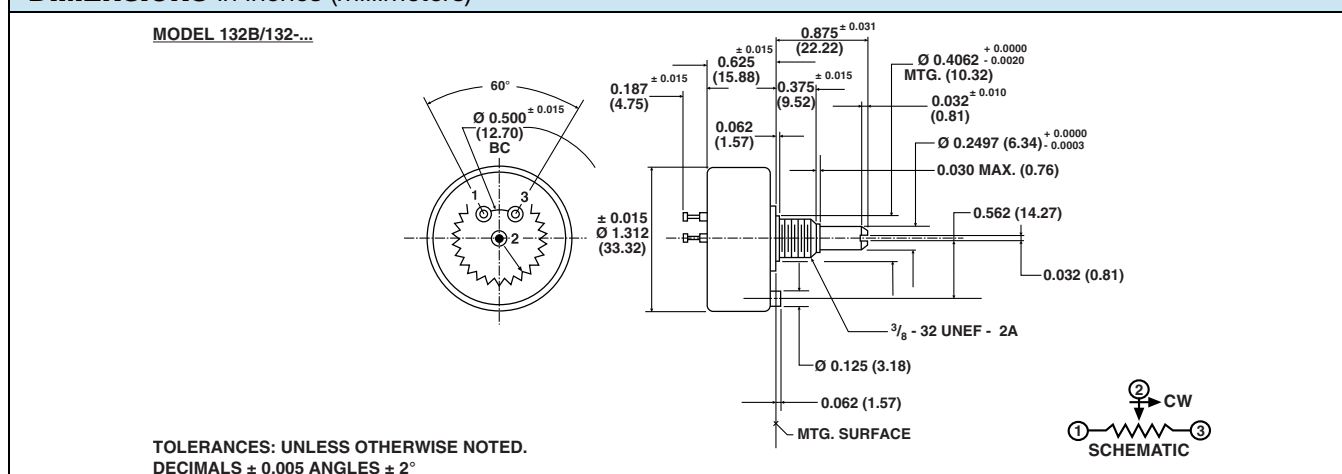
| 132                                                                                                                                                                                                                                                       | B             | 0                         | 0                                                                                | 20K         | BO10             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------|----------------------------------------------------------------------------------|-------------|------------------|
| MODEL                                                                                                                                                                                                                                                     | BUSHING MOUNT | MECHANICAL OPTIONS        | OTHER OPTIONAL FEATURES                                                          | OHMIC VALUE | PACKAGING        |
|                                                                                                                                                                                                                                                           |               | 0. Continuous<br>2. Stops | 0. Standard (end taps)<br>1. Center tap (within 5 $^\circ$ of electrical center) |             | Box of 10 pieces |
| Other characteristics will be standard as described on this specification sheet. If special characteristics are required such as special linearity tolerance, special resistance tolerance, non-linear functions, etc., please state these on your order. |               |                           |                                                                                  |             |                  |



## SAP PART NUMBERING GUIDELINES

| 132   | B     | 2                     | 1                     | 103         | B10              |
|-------|-------|-----------------------|-----------------------|-------------|------------------|
| MODEL | STYLE | MECHANICAL<br>OPTIONS | ELECTRICAL<br>OPTIONS | OHMIC VALUE | PACKAGING        |
|       |       | 2: With stops         | 1: With center tap    | 103: 10K    | Box of 10 pieces |

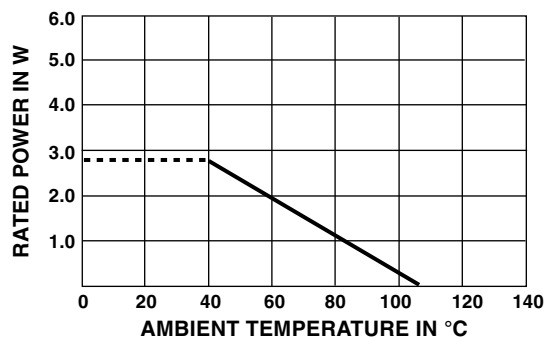
## DIMENSIONS in inches (millimeters)



## MECHANICAL SPECIFICATIONS

| PARAMETER                |                                                                                                                                              |          |         |                          |                             |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|--------------------------|-----------------------------|
| Rotation                 | 360° (continuous) or 340° $\pm 5^\circ$ (stops)                                                                                              |          |         |                          |                             |
| Bearing Type             | Sleeve                                                                                                                                       |          |         |                          |                             |
| Torque (maximums)        | <table> <tr> <th>STARTING</th><th>RUNNING</th></tr> <tr> <td>1.0 oz. - in (72 g - cm)</td><td>0.7 oz. - in (50.40 g - cm)</td></tr> </table> | STARTING | RUNNING | 1.0 oz. - in (72 g - cm) | 0.7 oz. - in (50.40 g - cm) |
| STARTING                 | RUNNING                                                                                                                                      |          |         |                          |                             |
| 1.0 oz. - in (72 g - cm) | 0.7 oz. - in (50.40 g - cm)                                                                                                                  |          |         |                          |                             |
| Runouts (maximums)       |                                                                                                                                              |          |         |                          |                             |
| Shaft Runout (TIR)       | 0.002" (0.05 mm)                                                                                                                             |          |         |                          |                             |
| Pilot Dia. Runout (TIR)  | 0.003" (0.08 mm)                                                                                                                             |          |         |                          |                             |
| Lateral Runout (TIR)     | 0.005" (0.13 mm)                                                                                                                             |          |         |                          |                             |
| Shaft End Play           | 0.008" (0.20 mm)                                                                                                                             |          |         |                          |                             |
| Shaft Radial Play        | 0.003" (0.08 mm)                                                                                                                             |          |         |                          |                             |
| Weight                   | 1.0 oz. maximum (28.35 g)                                                                                                                    |          |         |                          |                             |
| Stop Strength            | 8.0 in - lbs (9.21 kg - cm) (stops version only)                                                                                             |          |         |                          |                             |

## POWER RATING CHART



## MARKING

|                     |                                                                                                                                                                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Identification | Units shall be marked with Vishay Spectrol name, model number, resistance and tolerance, linearity, terminal identification, and data code Applicable test procedures: MIL-R-12934.<br>Example of a marking for a standard part: 132-0-0-103 |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## RESISTANCE ELEMENT DATA

| RESISTANCE VALUES ( $\Omega$ ) | RESOLUTION (%) | OHMS PER TURN | MAXIMUM CURRENT AT 40 °C AMBIENT (mA) | MAXIMUM VOLTAGE ACROSS COIL (V) | WIRE TEMP. COEF. (ppm/°C) |
|--------------------------------|----------------|---------------|---------------------------------------|---------------------------------|---------------------------|
| 5                              | 0.419          | 0.021         | 742                                   | 3.71                            | 800                       |
| 10                             | 0.327          | 0.032         | 524                                   | 5.24                            | 800                       |
| 20                             | 0.280          | 0.056         | 371                                   | 7.42                            | 800                       |
| 50                             | 0.290          | 0.145         | 234                                   | 11.7                            | 20                        |
| 100                            | 0.251          | 0.251         | 166                                   | 16.6                            | 20                        |
| 200                            | 0.212          | 0.424         | 122                                   | 24.4                            | 20                        |
| 500                            | 0.161          | 0.806         | 74.2                                  | 37.1                            | 20                        |
| 1K                             | 0.150          | 1.50          | 52.4                                  | 52.4                            | 20                        |
| 2K                             | 0.132          | 2.64          | 37.1                                  | 74.2                            | 20                        |
| 5K                             | 0.107          | 5.34          | 23.4                                  | 117                             | 20                        |
| 10K                            | 0.080          | 7.98          | 16.6                                  | 166                             | 20                        |
| 20K                            | 0.067          | 13.4          | 12.2                                  | 244                             | 20                        |
| 35K                            | 0.057          | 20.0          | 8.88                                  | 311                             | 20                        |



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