## 7/8" (22.2 mm) Multiturn Wirewound 533: 3 Turns/534: 10 Turns/535: 5 Turns



Note

- The color of this product may either be black (US market) or blue (other regions)


## FEATURES

- Bushing and servo mount designs available
- Special resistance tolerances to $1 \%$
- Rear shaft extensions and support bearing
- Metric shaft available
- Dual gang configuration and concentric shafts
- High torque, center tap, slipping clutch on request
- Special markings and front shaft extensions

ELECTRICAL SPECIFICATIONS

| PARAMETER | MODEL 533 | MODEL 534 | MODEL 535 |
| :---: | :---: | :---: | :---: |
| Resistance Range - Standard Values | $50 \Omega$ to $20 \mathrm{k} \Omega$ | $100 \Omega$ to $100 \mathrm{k} \Omega$ | $50 \Omega$ to $50 \mathrm{k} \Omega$ |
| Capability Range | $5 \Omega$ to $60 \mathrm{k} \Omega$ | $10 \Omega$ to $200 \mathrm{k} \Omega$ | $5 \Omega$ to $100 \mathrm{k} \Omega$ |
| Standard Tolerance | $\pm 5$ \% | $\pm 5$ \% | $\pm 5$ \% |
| Linearity (Independent) | $\pm 0.25$ \% | $\pm 0.25$ \% | $\pm 0.25$ \% |
| Noise | $100 \Omega$ ENR | $100 \Omega$ ENR | $100 \Omega$ ENR |
| Rotation (Electrical and Mechanical) | 1080 ${ }^{\circ}+{ }_{-10^{\circ}}$ | $3600^{\circ}+{ }^{10^{\circ}}$ | 1800 ${ }^{\circ}+{ }^{10} 0^{\circ}$ |
| Power Rating (at $70^{\circ} \mathrm{C}$ ) | 1.0 W | 2.0 W | 1.5 W |
| Insulation Resistance | $1000 \mathrm{M} \Omega$ minimum $500 \mathrm{~V}_{\mathrm{DC}}$ |  |  |
| Dielectric Strength | $1000 \mathrm{~V}_{\text {RMS }}$ minimum 60 Hz |  |  |
| Absolute Minimum Resistance | Not to exceed linearity $x$ total resistance or $1 \Omega$, whichever is greater |  |  |
| Temperature Coefficient | $20 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ (standard values, wire only) |  |  |
| End Voltage | 0.25 \% of total applied voltage, maximum |  |  |
| Phasing | CCW end points - section 2 phased to section 1 within $\pm 2^{\circ}$ |  |  |
| Taps | Center tap only |  |  |


| MARKING |  |
| :--- | :--- |
| Unit <br> Identification | Manufacturer's name and model number, <br> resistance value and tolerance, linearity <br> specification date code and terminal <br> identification |


| RESISTANCE VALUES |  |
| :--- | :--- |
| Ohms <br> $533:$ | $50 \mathrm{R}, 100 \mathrm{R}, 200 \mathrm{R}, 500 \mathrm{R}, 1 \mathrm{~K}, 2 \mathrm{~K}, 5 \mathrm{~K}, 10 \mathrm{~K}, 20 \mathrm{~K}$ |
| $\mathbf{5 3 4}:$ | $100 \mathrm{R}, 200 \mathrm{R}, 500 \mathrm{R}, 1 \mathrm{~K}, 2 \mathrm{~K}, 5 \mathrm{~K}, 10 \mathrm{~K}, 20 \mathrm{~K}, 50 \mathrm{~K}, 100 \mathrm{~K}$ |
| $\mathbf{5 3 5}:$ | $50 \mathrm{R}, 100 \mathrm{R}, 200 \mathrm{R}, 500 \mathrm{R}, 1 \mathrm{~K}, 2 \mathrm{~K}, 5 \mathrm{~K}, 10 \mathrm{~K}, 20 \mathrm{~K}, 50 \mathrm{~K}$ |

## ORDERING INFORMATION/DESCRIPTION

The Models 533 (3 turns), 534 (10 turns) and 535 (5 turns) can be ordered by stating

| $\mathbf{5 3 4}$ | B | $\mathbf{2}$ | $\mathbf{1 0 K}$ | $\mathbf{2 0 K}$ | $\mathbf{5} \%$ | C | BO10 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MODEL | MOUNTING | NUMBER OF | OHMIC | OHMIC | TOLERANCE | LINEARITY | PACKAGING | LEAD FINISH |
|  | B: Bushing | SECTIONS | VALUE | VALUE | ON OHMIC |  | Box of |  |
|  | S: Servo |  | SECTION | SECTION | VALUE | (STD) | 10 pieces |  |
|  |  | $N^{0} 1$ | $N^{\circ} 2$ |  |  |  |  |  |


| SAP PART NUMBERING GUIDELINES |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 534 | B | 2 | 103 | 203 | J | C | B10 |
| MODEL | StYLE | NUMBER OF SECTIONS | ohmic Value SECTION N ${ }^{\circ} 1$ | ohmic Value SECTION No 2 | TOLERANCE ON OHMIC VALUE | LINEARITY | PACKAGING |
|  | B: Bushing <br> S: Servo |  | $103=10 \mathrm{~K}$ | $203=20 \mathrm{~K}$ | $\begin{aligned} & \mathrm{J}: \pm 5 \% \\ & \mathrm{~F}: \pm 1 \% \end{aligned}$ | $\begin{aligned} & \mathrm{C}: \pm 0.25 \% \\ & \text { CUSTM: } \\ & \mathrm{L} \pm 0.20 \% \\ & \mathrm{D}: \pm 0.1 \% \\ & \hline \end{aligned}$ | Box of 10 pieces |

$7 / 8$ " (22.2 mm) Multiturn Wirewound
533: 3 Turns/534: 10 Turns/535: 5 Turns
SINGLE SECTION DIMENSIONS in inches (millimeters)


Mounting hardware, washer and panel nut, nickel plated

| MECHANICAL SPECIFICATIONS |  |  |
| :---: | :---: | :---: |
| PARAMETER |  |  |
| Bearing Type | Bushing: Sleeve bearing | Servo: Ball bearing |
| Torque (Maximums): Starting Section 1 Section 2 | $\begin{gathered} 534 \\ 0.5 \mathrm{oz} .- \text { in }(36 \mathrm{~g}-\mathrm{cm}) \\ 0.9 \mathrm{oz}-\mathrm{in}(65 \mathrm{~g}-\mathrm{cm}) \end{gathered}$ | $\begin{gathered} 533 / 535 \\ 0.7 \mathrm{oz} .- \text { in }(50 \mathrm{~g}-\mathrm{cm}) \\ 1.1 \mathrm{oz} .- \text { in }(79 \mathrm{~g}-\mathrm{cm}) \\ \hline \end{gathered}$ |
| Torque (Maximums): Running Section 1 Section 2 | $\begin{gathered} 534 \\ 0.4 \mathrm{ozz}-\text { in }(28.80 \mathrm{~g}-\mathrm{cm}) \\ 0.7 \mathrm{oz}-\mathrm{in}(50.40 \mathrm{~g}-\mathrm{cm}) \end{gathered}$ | $\begin{gathered} 533 / 535 \\ 0.6 \text { oz. - in }(43.20 \mathrm{~g}-\mathrm{cm}) \\ 0.9 \text { oz. }- \text { in }(64.8 \mathrm{~g}-\mathrm{cm}) \end{gathered}$ |
| Weight (Maximums) <br> Section1 <br> Section 2 | $\begin{aligned} & 0.75 \text { oz. }(21.26 \mathrm{~g}) \\ & 1.25 \text { oz. }(35.44 \mathrm{~g}) \end{aligned}$ |  |
| Stop Strength | 75 oz - - in (static) ( $5.4 \mathrm{~kg} \mathrm{-} \mathrm{~cm}$ ) |  |
| Ganging | 2 sections maximum |  |

## POWER RATING CHART



ENVIRONMENTAL SPECIFICATIONS

| Vibration | 15 g thru 2000 Hz |
| :--- | :---: |
| Shock | 50 g |
| Rotational Life (Shaft Revolution) |  |
| 533 |  |
| 534 |  |
| 534 (Servo) | 300000 <br> 535 |
| Load Life | $>00000$ |
| 5000000 |  |

7/8" ( 22.2 mm ) Multiturn Wirewound Vishay Spectrol
533: 3 Turns/534: 10 Turns/535: 5 Turns

| RESISTANCE ELEMENT DATA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| RESISTANCE VALUE <br> ( $\Omega$ ) |  |  | $\begin{gathered} \text { RESOLUTION } \\ \% \end{gathered}$ |  |  | OHMS PER TURN |  |  | MAXIMUM CURRENT AT $70^{\circ} \mathrm{C}$ AMBIENT (mA) |  |  | MAXIMUM VOLTAGE ACROSS COIL <br> (V) |  |  |
| 533 | 534 | 535 | 533 | 534 | 535 | 533 | 534 | 535 | 533 | 534 | 535 | 533 | 534 | 535 |
| 50 | - | 50 | 0.149 | - | 0.120 | 0.0746 | - | 0.0603 | 141.0 | - | 173.0 | 7.07 | - | 8.66 |
| 100 | 100 | 100 | 0.111 | 0.060 | 0.075 | 0.1114 | 0.0603 | 0.0746 | 100.0 | 141.0 | 122.0 | 10.0 | 14.1 | 12.2 |
| 200 | 200 | 200 | 0.097 | 0.037 | 0.061 | 0.1954 | 0.0746 | 0.1220 | 70.7 | 100.0 | 86.6 | 14.1 | 20.0 | 17.3 |
| 500 | 500 | 500 | 0.069 | 0.031 | 0.049 | 0.3424 | 0.1520 | 0.2459 | 44.7 | 63.2 | 54.7 | 22.4 | 31.6 | 27.4 |
| 1K | 1K | 1K | 0.063 | 0.025 | 0.041 | 0.6331 | 0.2459 | 0.4113 | 31.6 | 44.7 | 38.7 | 31.6 | 44.7 | 38.7 |
| 2 K | 2K | 2 K | 0.041 | 0.021 | 0.031 | 0.8206 | 0.4113 | 0.6331 | 22.4 | 31.6 | 27.4 | 44.7 | 63.2 | 54.8 |
| 5K | 5K | 5K | 0.044 | 0.016 | 0.034 | 2.2330 | 0.8206 | 1.7230 | 14.1 | 20.0 | 17.3 | 70.7 | 100.0 | 86.6 |
| 10K | 10K | 10K | 0.034 | 0.017 | 0.030 | 3.4510 | 1.7230 | 3.0160 | 10.0 | 14.1 | 12.2 | 100.0 | 141.0 | 122.0 |
| 20K | 20K | 20K | 0.031 | 0.015 | 0.020 | 6.1790 | 3.0160 | 3.9910 | 7.07 | 10.0 | 8.66 | 141.0 | 200.0 | 173.0 |
| - | 50K | 50K | - | 0.009 | 0.015 | - | 4.6690 | 7.4560 | - | 6.32 | 5.47 | - | 316.0 | 274.0 |
| - | 100K | - | - | 0.007 | - | - | 7.4560 | - | - | 4.47 | - | - | 447.0 | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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