

# 1/2" (12.7 mm) Single - Turn Wirewound Servo Mount Type Precision Potentiometer


**FEATURES**

- Ohmic value range: 50  $\Omega$  up to 20 k $\Omega$
- Smallest size available: 12.7 mm
- Center tap on request
- Custom shafts available on request
- 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 | Professional                      |
| Dimensions       | 1/2" (12.7 mm)                    |

**ELECTRICAL SPECIFICATIONS**

| PARAMETER                   |  |
|-----------------------------|--|
| Total Resistance            | 50 $\Omega$ to 20 k $\Omega$   |
| Tolerance                   | $\pm 5\%$  |
| Absolute Minimum Resistance | Linearity x total resistance or 0.5 $\Omega$ , whichever is greater  |
| Linearity (independent)     | $\pm 1.0\%$  |
| Noise                       | 100 $\Omega$ ENR   |
| Power Rating                | 2 W at 40 $^{\circ}\text{C}$ ambient derating linearly to zero at 125 $^{\circ}\text{C}$   |
| Insulation Resistance       | 1000 M $\Omega$ min. 500 V <sub>DC</sub>   |
| Dielectric Strength         | 1000 V <sub>RMS</sub> , 60 Hz  |
| Electrical Angle            | 350 $^{\circ}$ + 0 $^{\circ}$ - 4 $^{\circ}$   |
| End Voltage                 | Linearity x total applied voltage for total resistance above 20 $\Omega$ ;<br>2.0 % of total applied voltage for 20 $\Omega$ and below |

**MATERIAL SPECIFICATIONS**

|           |  |
|-----------|--|
| Shaft     | Stainless steel, non magnetic non-passivated |
| Housing   | Aluminum, anodized                           |
| Rear Lid  | Molded glass filled thermoset plastic        |
| Terminals | Brass, gold plated                           |

**ENVIRONMENTAL SPECIFICATIONS**

|                   |   |
|-------------------|---|
| Vibration         | 20 g thru 2000 Hz   |
| Shock             | 50 g  |
| Salt Spray        | 96 h  |
| Rotational Life   | 500 000 shaft revolutions                                       |
| Load Life         | 900 h   |
| Temperature Range | - 55 $^{\circ}\text{C}$ to + 125 $^{\circ}\text{C}$ (operating) |

**ORDERING INFORMATION/DESCRIPTION**

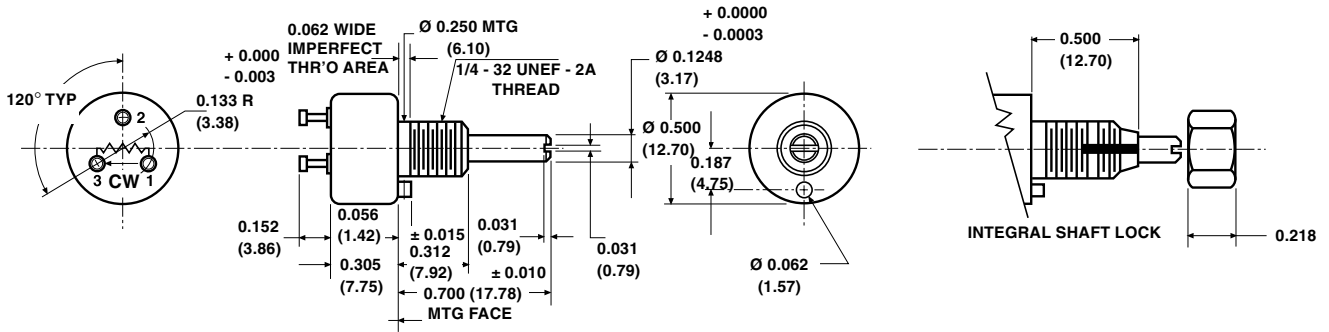
| 142S  | 0  | 0   | 10K         | BO10             |
|-------|--|---|-------------|------------------|
| MODEL | MECHANICAL OPTIONS                         | SPECIAL FEATURE                                   | OHMIC VALUE | PACKAGING        |
|       | 0. Continuous rotation, plain shaft (std.) | 0. Standard torque<br>1. Center tap (10K max. Rt) |             | Box of 10 pieces |

**SAP PART NUMBERING GUIDELINES**

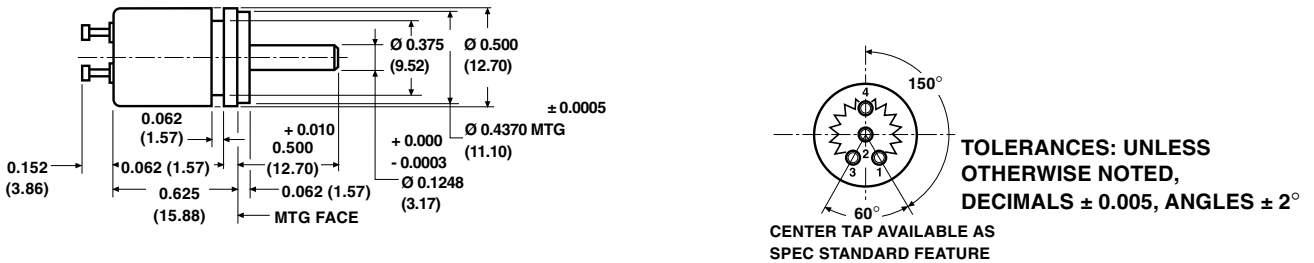
| 142S  | 0                  | 1                  | 502         | B10              |
|-------|--------------------|--------------------|-------------|------------------|
| MODEL | MECHANICAL OPTIONS | SPECIAL FEATURE    | OHMIC VALUE | PACKAGING        |
|       |                    | 1: With center tap | 502 = 5K    | Box of 10 pieces |

**DIMENSIONS** in inches (millimeters)

**BUSHING MOUNT**

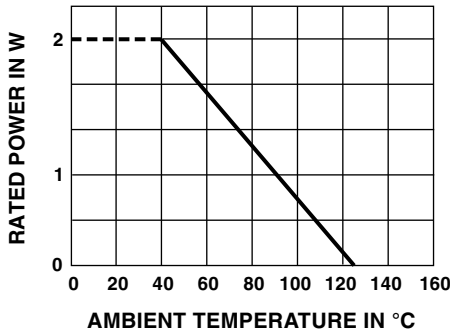


**SERVO MOUNT**



| MECHANICAL SPECIFICATIONS |                              |
|---------------------------|------------------------------|
| PARAMETER                 |                              |
| Rotation                  | 360° continuous              |
| Bearing Type              | <b>BALL BEARING</b>          |
| Torque (maximums)         |                              |
| Starting                  | 0.075 oz. - in (5.40 g - cm) |
| Running                   | 0.05 oz. - in (3.60 g - cm)  |
| Dead Zone                 | 0.20 oz. - in (14.40 g - cm) |
| Weight                    | 0.3 oz. (8.50 g) maximum     |
| Runouts (maximum)         |                              |
| Shaft (TIR)               | 0.002" (0.05 cm)             |
| Pilot Dia. (TIR)          | 0.002" (0.05 cm)             |
| Lateral (TIR)             | 0.002" (0.05 cm)             |
| Shaft End Play            | 0.004" (0.10 cm)             |
| Shaft Radial Play         | 0.002" (0.05 cm)             |

**POWER RATING CHART**



| RESISTANCE ELEMENT DATA   |                |               |                                       |                                 |                           |
|---------------------------|----------------|---------------|---------------------------------------|---------------------------------|---------------------------|
| STD RESISTANCE VALUES (Ω) | RESOLUTION (%) | OHMS PER TURN | MAXIMUM CURRENT AT 40 °C AMBIENT (mA) | MAXIMUM VOLTAGE ACROSS COIL (V) | WIRE TEMP. COEF. (ppm/°C) |
| 50                        | 0.542          | 0.271         | 200.0                                 | 10.0                            | 20                        |
| 100                       | 0.431          | 0.431         | 141.0                                 | 14.1                            | 20                        |
| 200                       | 0.361          | 0.722         | 100.0                                 | 20.0                            | 20                        |
| 500                       | 0.312          | 1.56          | 63.2                                  | 31.6                            | 20                        |
| 1K                        | 0.255          | 2.55          | 44.7                                  | 44.7                            | 20                        |
| 2K                        | 0.197          | 3.94          | 31.6                                  | 63.2                            | 20                        |
| 5K                        | 0.170          | 8.50          | 20.0                                  | 100.0                           | 20                        |
| 10K                       | 0.147          | 14.7          | 14.1                                  | 141.0                           | 20                        |
| 20K                       | 0.105          | 21.0          | 10.0                                  | 200.0                           | 20                        |

| MARKING             |   |
|---------------------|---|
| Unit Identification |   |
|                     | Units shall be marked with manufacturer's name, model number, resistance value and tolerance, circuit diagram, terminal identification, linearity and data code |



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