

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


**FEATURES**

- Ohmic value range: 50 Ω up to 20 kΩ
- 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 Ω to 20 kΩ   |
| Tolerance                   | ± 5 %   |
| Absolute Minimum Resistance | Linearity x total resistance or 0.5 Ω, whichever is greater   |
| Linearity (independent)     | ± 1.0 %   |
| Noise                       | 100 Ω ENR   |
| Power Rating                | 2 W at 40 °C ambient derating linearly to zero at 125 °C  |
| Insulation Resistance       | 1000 MΩ min. 500 V <sub>DC</sub>  |
| Dielectric Strength         | 1000 V <sub>RMS</sub> , 60 Hz   |
| Electrical Angle            | 350° +0° -4°  |
| End Voltage                 | Linearity x total applied voltage for total resistance above 20 Ω;<br>2.0 % of total applied voltage for 20 Ω 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 °C to +125 °C (operating) |

**Note**

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

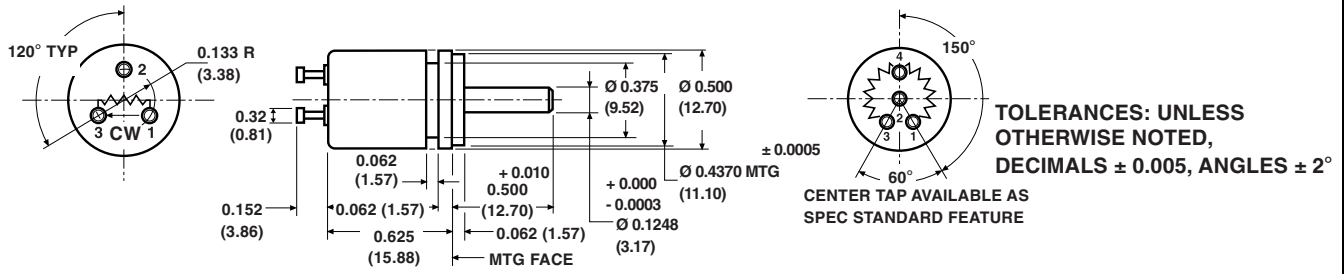
**ORDERING INFORMATION**

|       |          |                         |   |   |   |   |  |   |                  |   |   |   |
|-------|----------|-------------------------|---|---|---|---|--|---|------------------|---|---|---|
| 1     | 4        | 2                       | S | 0   | 1 | 5 | 0  | 2 | X                | X | X | X |
| MODEL | STYLE    | MECHANICAL OPTIONS      |   | FEATURES  |   |   | VALUE  |   | SPECIAL REQUEST  |   |   |   |
| 142   | S: servo | 0 = continuous rotation |   | 0 = standard torque<br>1 = center tap (10K max. Rt) |   |   | 470 = 47 Ω<br>222 = 2,200 Ω<br>103 = 10 kΩ<br>For ohmic value range see electrical specification |   | Custom reference |   |   |   |

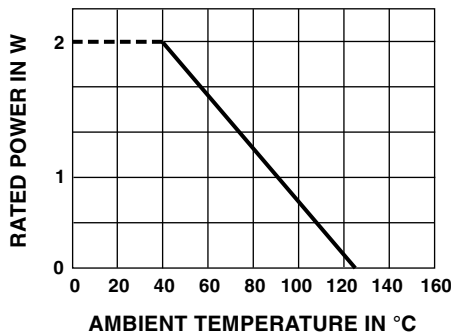
**PART NUMBER DESCRIPTION** (for information only)

|       |                       |          |             |         |
|-------|-----------------------|----------|-------------|---------|
| 142   | 0-                    | 1-       | 502         | xxxx    |
| MODEL | MECHANICAL<br>OPTIONS | FEATURES | OHMIC VALUE | SPECIAL |

**DIMENSIONS** in inches (millimeters)

**MODEL 142S/142-...**

**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**

|                            |  |
|----------------------------|--|
| <b>Unit Identification</b> | Units shall be marked with manufacturer's name, model number, resistance value and tolerance, circuit diagram, terminal identification, linearity and data code. Example of a marking for a standard part: 142-0-1-102 |
|----------------------------|--|



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