

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


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 _{DC} |
| Dielectric Strength | 1000 V _{RMS} , 60 Hz |
| Electrical Angle | 350° +0° -4° |
| End Voltage | Linearity x total applied voltage for total resistance above 20 Ω; 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

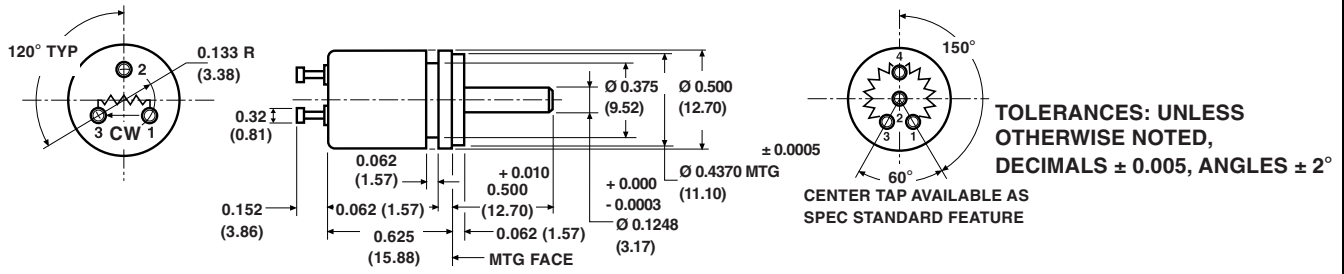
ORDERING INFORMATION

| | | | | | | | | | | | | |
|-------|----------|-------------------------|---|---|---|---|--|------------------|---|---|---|---|
| 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 1 = center tap (10K max. Rt) | | | 470 = 47 Ω 222 = 2,200 Ω 103 = 10 kΩ For ohmic value range see electrical specification | Custom reference | | | | |

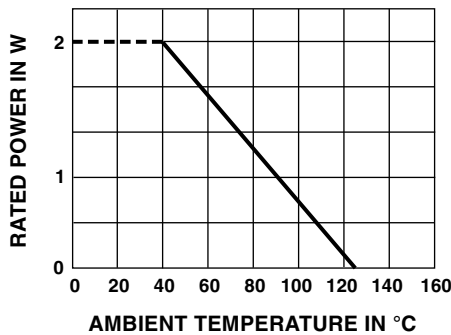
PART NUMBER DESCRIPTION (for information only)

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

DIMENSIONS in inches (millimeters)

MODEL 142S/142-...

MECHANICAL SPECIFICATIONS

| PARAMETER | |
|-------------------|------------------------------|
| Rotation | 360° continuous |
| Bearing Type | BALL BEARING |
| 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. Example of a marking for a standard part: 142-0-1-102 |
|----------------------------|--|



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