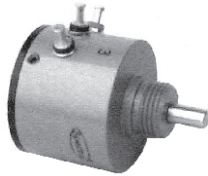


7/8" (22.2 mm) Single Turn Wirewound (Precision Potentiometer)



FEATURES

- Large range of ohmic values: From 5 Ω up to 100 kΩ
- Bushing mount or servo mount types are available
- Extra taps upon request
- Gangable up to 6 sections
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

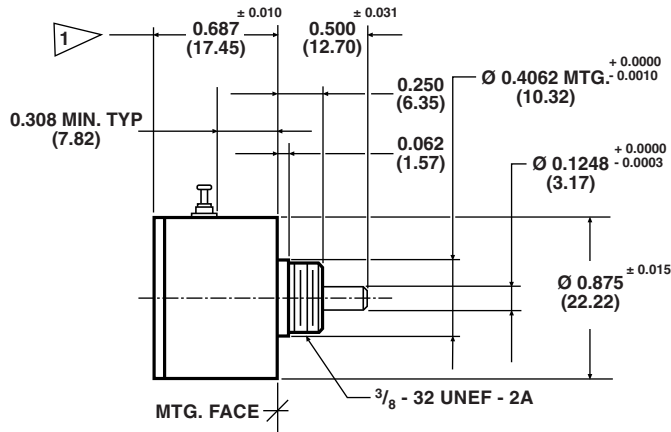
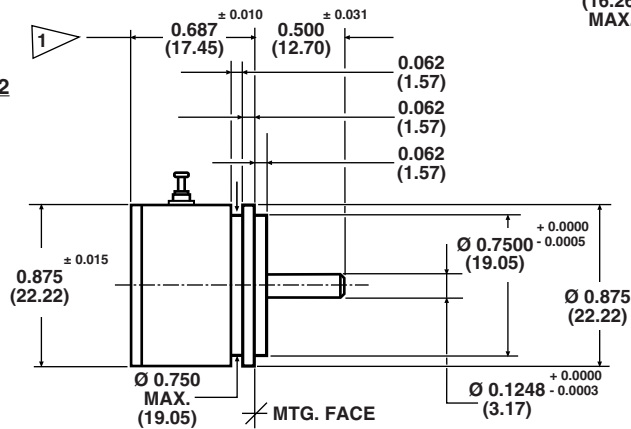
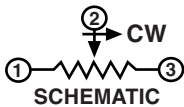

RoHS
COMPLIANT

| QUICK REFERENCE DATA | |
|----------------------|-----------------------------------|
| Sensor type | ROTATIONAL, single turn wirewound |
| Output type | Output by turrets |
| Market appliance | Professional |
| Dimensions | 7/8" (22.2 mm) |

| ELECTRICAL SPECIFICATIONS | | |
|--|--|---|
| PARAMETER | STANDARD | SPECIAL |
| Total resistance: (bushing 91 kΩ max.) Tolerance: 20 Ω and above Below 20 Ω | 5 Ω to 20 kΩ ± 3 % ± 5 % | to 30 kΩ ± 1 % ± 3 % |
| Absolute minimum resistance | Linearity x total resistance or 0.5 Ω whichever is greater | |
| End voltage | Linearity x total applied voltage for total resistance above 20 Ω, 2.0 % of total applied voltage for 20 Ω and below | |
| Linearity (independent) 5 Ω to 100 Ω 100 Ω to 500 Ω 500 Ω to 5 kΩ 5 kΩ and above | STANDARD ± 1.0 % ± 1.0 % ± 0.5 % ± 0.5 % | BEST PRACTICAL ± 0.75 % ± 0.50 % ± 0.35 % ± 0.25 % |
| Noise | 100 Ω ENR | |
| Electrical angle | 350° ± 2° | |
| Power rating Section 1 Additional sections | 1.25 W at 70 °C ambient derated to zero at 125 °C 75 % of the rating of section 1 (0.94 W at 70 °C) | |
| Insulation resistance | 1000 MΩ minimum, 500 V _{DC} | |
| Dielectric strength | 1000 V _{RMS} , 60 Hz | |
| Taps (extra) | 9 available as special, standard tolerance ± 2° | |
| Phasing (CCW end points) | Additional sections phased to section 1 within ± 1° | |

| ORDERING INFORMATION | | | | | | | | | | | | | | |
|----------------------|---|------------------------|---|----------------------------|---|--|---|--|---|------------------|---|---|---|---|
| 7 | 0 | 2 | S | 1 | 2 | 0 | 3 | 2 | 0 | 3 | X | X | X | X |
| MODEL | | STYLE | | GANGS | | OHMIC VALUE GANGS Nº 1 | | OHMIC VALUE GANGS Nº 2 | | SPECIAL REQUEST | | | | |
| 702 | | B: bushing S: servo | | 1 2 3 4 5 6 | | 470 = 47 Ω 222 = 2.200 Ω 103 = 10 kΩ For ohmic value range see electrical specification | | 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) | | | | | |
|--|----------------|-------|------------------------|------------------------|---------|
| 702- | 2 | 1 | 203 | 203 | XXXX |
| MODEL | STYLE | GANGS | OHMIC VALUE GANGS Nº 1 | OHMIC VALUE GANGS Nº 2 | SPECIAL |
| | B = 1 S = 2 | | | | |

DIMENSIONS in inches (millimeters)

SERVO MOUNT: 702S/702-2


① ADD 0.500 (12.70) ± 0.002 FOR EACH ADDITIONAL SECTION

TOLERANCES: UNLESS OTHERWISE NOTED.
DECIMALS ± 0.005 ANGLES ± 2°

MECHANICAL SPECIFICATIONS

| PARAMETER | | |
|--------------------------------|---|----------------------------------|
| Rotation | 360° continuous | |
| Bearing type | SERVO Ball bearing | BUSHING Sleeve bearing |
| Ganging | 6 sections maximum Terminal alignment, added sections within ± 10° of section 1 terminals | |
| Torque (maximum) | STARTING | RUNNING |
| Servo section 1 | 0.10 oz. - in (7.20 g - cm) | 0.085 oz. - in (6.12 g - cm) |
| Bushing section 1 | 0.25 oz. - in (18.00 g - cm) | 0.20 oz. - in (14.40 g - cm) |
| Each additional section | 0.10 oz. - in (7.20 g - cm) | 0.075 oz. - in (5.40 g - cm) |
| Mechanical runouts (maximums): | SERVO | BUSHING |
| Shaft runout (TIR/in) | 0.002" (0.05 cm) | 0.002" (0.05 cm) |
| Pilot dia. runout (TIR) | 0.002" (0.05 cm) | 0.002" (0.05 cm) |
| Lateral runout (TIR) | 0.002" (0.05 cm) | 0.005" (0.13 cm) |
| Shaft end play | 0.005" (0.13 cm) | 0.005" (0.13 cm) |
| Shaft radial play | 0.002" (0.05 cm) | 0.004" (0.10 cm) |
| Moment of inertia | 0.12 g - cm ² per section maximum | |
| Weight: | | |
| Single section | 0.6 oz. (17.01 g) | |
| Each additional section | 0.2 oz. (5.67 g) | |



| MATERIAL SPECIFICATIONS | |
|--|--|
| Housing and lids | Aluminum, anodized |
| Shaft | Stainless steel, non-magnetic non-passivated |
| Terminals | Brass, plated for solderability |
| Bushing mount hardware Lockwasher internal tooth: Panel nut: | Steel, nickel plated Brass, nickel plated |

| MARKING | |
|---------------------|--|
| Unit identification | Units shall be marked with Vishay Spectrol name, model no and date code, and on each section: resistance, resistance tolerance, linearity and terminal identification. Example of a marking for a standard part: 702-11502 |

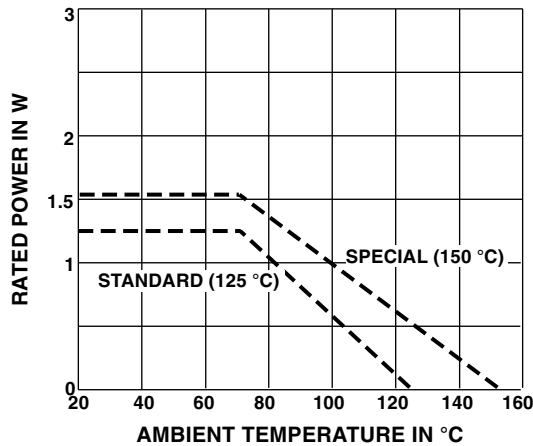
| ENVIRONMENTAL SPECIFICATIONS | |
|------------------------------|-----------------------------|
| Vibration | 15 g thru 2000 CPS |
| Shock | 50 g |
| Salt spray | 96 h |
| Rotational life | 1 million shaft revolutions |
| Load life | 900 h |
| Operating temperature range: | -55 °C +125 °C |

Note

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

POWER RATING CHART

(Ratings for cup N°. 1. Additional cups 75 % of values shown)



| RESISTANCE ELEMENT DATA | | | | | |
|--------------------------------|----------------|---------------|---------------------------------------|---------------------------------|---------------------------|
| STANDARD RESISTANCE VALUES (Ω) | RESOLUTION (%) | OHMS PER TURN | MAXIMUM CURRENT AT 70 °C AMBIENT (mA) | MAXIMUM VOLTAGE ACROSS COIL (V) | WIRE TEMP. COEF. (ppm/°C) |
| 5 | 0.460 | 0.023 | 500 | 2.50 | 800 |
| 10 | 0.378 | 0.038 | 354 | 3.54 | 800 |
| 20 | 0.374 | 0.075 | 250 | 5.00 | 180 |
| 50 | 0.300 | 0.150 | 158 | 7.90 | 180 |
| 100 | 0.271 | 0.271 | 112 | 11.2 | 20 |
| 200 | 0.235 | 0.478 | 79.1 | 15.8 | 20 |
| 500 | 0.206 | 1.03 | 50.0 | 25.0 | 20 |
| 1K | 0.156 | 1.56 | 35.4 | 35.4 | 20 |
| 2K | 0.127 | 2.55 | 25.0 | 50.0 | 20 |
| 5K | 0.101 | 5.07 | 15.8 | 79.0 | 20 |
| 10K | 0.095 | 8.50 | 11.2 | 112.0 | 20 |
| 20K | 0.090 | 17.9 | 7.90 | 158.0 | 20 |
| 50K | 0.075 | 37.9 | 5.00 | 250.0 | 20 |
| 100K | 0.065 | 64.5 | 3.54 | 354.0 | 20 |



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