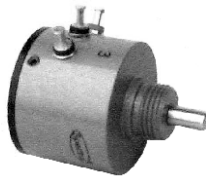


## 7/8" (22.2 mm) Single Turn Wirewound (Precision Potentiometer)


**FEATURES**

- Large range of ohmic values: From 5  $\Omega$  up to 100 k $\Omega$
- 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](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	7/8" (22.2 mm)

**ELECTRICAL SPECIFICATIONS**

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

**ORDERING INFORMATION/DESCRIPTION**

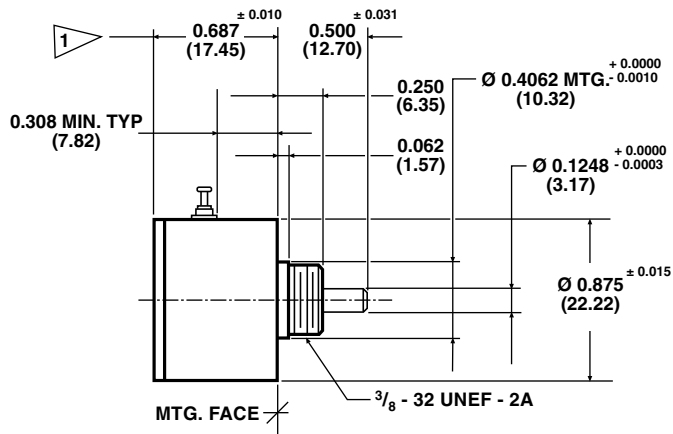
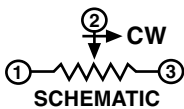
The model 702 can be ordered from this datasheet with a variety of alternate characteristics, as shown. For most rapid service on your order, please state:

<b>702</b>	<b>B</b>	<b>1</b>	<b>20K</b>	<b>B01</b>
MODEL	MOUNTING TYPE	NUMBER OF SECTIONS	OHMIC VALUE	PACKAGING
	<b>B:</b> Bushing <b>S:</b> Servo	From 1 up to 6 sections (max.)		Box of 1 piece

Other characteristics will be standard as described on this datasheet. If special characteristics are required, such as: special linearity tolerance, special resistance tolerance, extra taps, non-linear functions, etc., please state these on your order and allow additional lead time for delivery.

**SAP PART NUMBERING GUIDELINES**

<b>702</b>	<b>S</b>	<b>2</b>	<b>050</b>	<b>100</b>	<b>B01</b>
MODEL	MOUNTING TYPE	NUMBER OF SECTIONS	OHMIC VALUE	OHMIC VALUE	PACKAGING
	<b>S:</b> Servo		Section N <sup>o</sup> 1 050 = 5 $\Omega$	Section N <sup>o</sup> 2 100 = 10 $\Omega$	Box of 1 piece

**DIMENSIONS** in inches (millimeters)

**SERVO MOUNT: 702S**


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	<b>SERVO</b> Ball bearing	<b>BUSHING</b> Sleeve bearing
Ganging	6 sections maximum Terminal alignment, added sections within ± 10° of section 1 terminals	
Torque (maximum)	<b>STARTING</b>	<b>RUNNING</b>
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):	<b>SERVO</b>	<b>BUSHING</b>
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 <sup>2</sup> per section maximum	
Weight:		
Single section	0.6 oz. (17.01 g)	
Each additional section	0.2 oz. (5.67 g)	



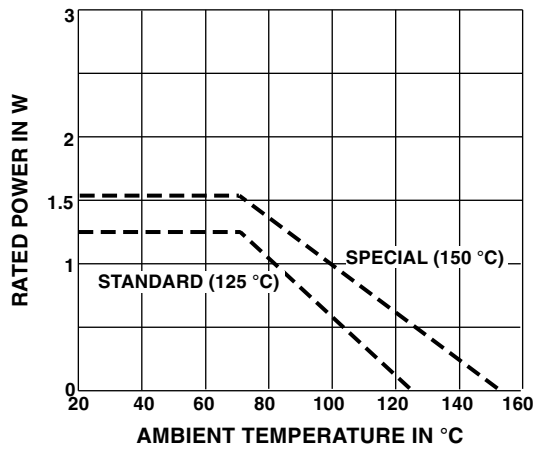
MATERIAL SPECIFICATIONS	
Housing and lids	Aluminum, anodized
Shaft	Stainless steel, non-magnetic non-passivated
Terminals	Brass, plated for solderability
Bushing mount hardware Lockwasher internal tooth: Panel nut:	Steel, nickel plated Brass, nickel plated

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

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

**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	0.95	8.50	11.2	112.0	20
20K	0.90	17.9	7.90	158.0	20
50K	0.75	37.9	5.00	250.0	20
100K	0.65	64.5	3.54	354.0	20



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