

3" (76.2 mm) Single Turn Wirewound Precision Potentiometer



This Model 402 is only for maintenance purposes. It is not recommended for new designs and will be obsolete in a near future.

FEATURES

- Large range of ohmic values: 10 Ω up to 150 k Ω
- Bushing mount, servo mount and screwing mount available
- Extra taps upon request
- Gangable up to 6 sections



ELECTRICAL SPECIFICATIONS

PARAMETER		
Total Resistance: Tolerance: 100 Ω and Above Below 100 Ω :	STANDARD 10 Ω to 100 k Ω $\pm 3\%$ $\pm 5\%$	SPECIAL 150 k Ω $\pm 1\%$ $\pm 3\%$
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 voltage for 20 Ω and below	
Linearity (Independent) Total Resistance 10 Ω to 200 Ω 200 Ω to 2 k Ω 2 k Ω to 10 k Ω 10 k Ω and Above	STANDARD $\pm 0.50\%$ $\pm 0.25\%$ $\pm 0.25\%$ $\pm 0.25\%$	BEST PRACTICAL $\pm 0.25\%$ $\pm 0.15\%$ $\pm 0.10\%$ $\pm 0.075\%$
Noise	100 Ω ENR	
Electrical Angle	350° $\pm 2^\circ$	
Power Rating Section 1 Additional Section	6.0 W at 70 °C ambient derated to zero at 125 °C 75 % of the rating of section 1 (4.5 W at 70 °C)	
Insulation Resistance	1000 M Ω minimum 500 V _{DC}	
Dielectric Strength	1000 V _{RMS} , 60 Hz	
Taps (Extra)	37 available as special, standard tolerance $\pm 1^\circ$	
Phasing (CCW End Points)	Additional sections phased to section 1 within $\pm 1^\circ$	

ORDERING INFORMATION/DESCRIPTION

The Model 402 can be ordered from this specification sheet with a variety of alternate characteristics, are as shown above. For most rapid service on your order, please state:

402	B	1	100K	B01
MODEL	MOUNTING TYPE	NUMBER OF SECTIONS	OHMIC VALUE	PACKAGING
	B: Bushing S: Servo C: Screw	From 1 up to 6 (Max.)		Box of 1 piece

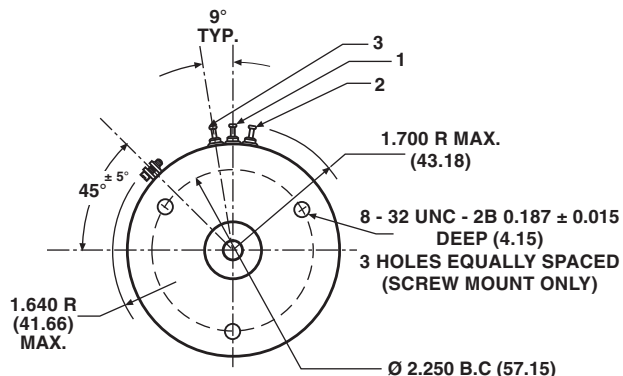
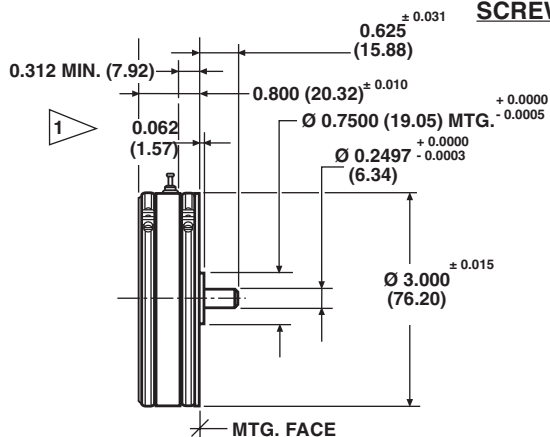
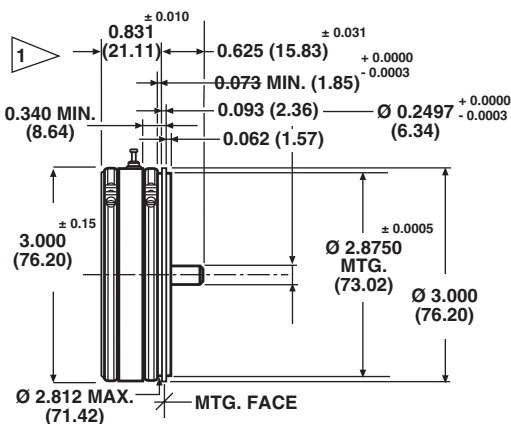
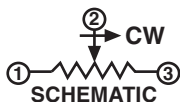
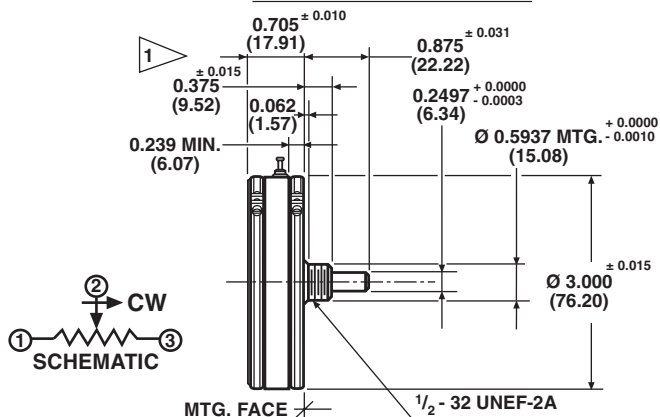
Other characteristics will be standard as described on this data sheet. If special characteristics are required, such as: special linearity tolerance, special resistance tolerance, extra taps, non-linear functions, etc., please state these on your order and allow additional lead time for delivery.

SAP PART NUMBERING GUIDELINES

402	C	2	101	104	B01
MODEL	MOUNTING TYPE	NUMBER OF SECTIONS	OHMIC VALUE	OHMIC VALUE	PACKAGING
	C: Screw		Section N° 1 101 = 100 Ω	Section N° 2 104 = 100 k Ω	Box of 1 piece

3" (76.2 mm) Single Turn Wirewound
Precision Potentiometer

Vishay Spectrol

DIMENSIONS in inches (millimeters)**SCREW MOUNT: 402C****SERVO MOUNT: 402S****BUSHING MOUNT: 402B**

1 ADD 0.500 (12.70) FOR EACH ADDITIONAL SECTION.

MECHANICAL SPECIFICATIONS

PARAMETER		
Rotation	360° (continuous)	
Bearing Type Servo and Screw Mount: Bushing Mount	Ball bearing Sleeve bearing	
Ganging	6 sections maximum terminal alignment, added sections, within ± 10° of section 1 terminals	
Torque (Maximum) Mounting: Servo or Screw 1 Section Bushing 1 Section Each additional Section	STARTING 1.1 oz. - in (79.21 g - cm) 1.9 oz. - in (136.82 g - cm) 0.8 oz. - in (57.61 g - cm)	RUNNING 0.6 oz. - in (43.20 g - cm) 1.1 oz. - in (79.21 g - cm) 0.5 oz. - in (36.00 g - cm)
Runouts (Maximums) Shaft (TIR/in) Pilot dia (TIR) Lateral (TIR) Shaft End Play Shaft Radial Play	SERVO 0.002" (0.05 cm) 0.002" (0.05 cm) 0.004" (0.10 cm) 0.005" (0.13 cm) 0.002" (0.05 cm)	BUSHING 0.002" (0.05 cm) 0.002" (0.05 cm) 0.005" (0.13 cm) 0.005" (0.13 cm) 0.003" (0.08 cm)
Moment of Inertia	4.0 g - cm ² per section maximum	
Weight (Maximums) Each Additional Section:	Single section: 7.0 oz. (198.45 g) 2.0 oz. (56.70 g)	

Model 402

Not for New Design



Vishay Spectrol

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MATERIAL SPECIFICATIONS

Housing and Lids	Aluminum, anodized
Shaft and Clamp Rings	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

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
Temperature Range	- 55 °C + 125 °C

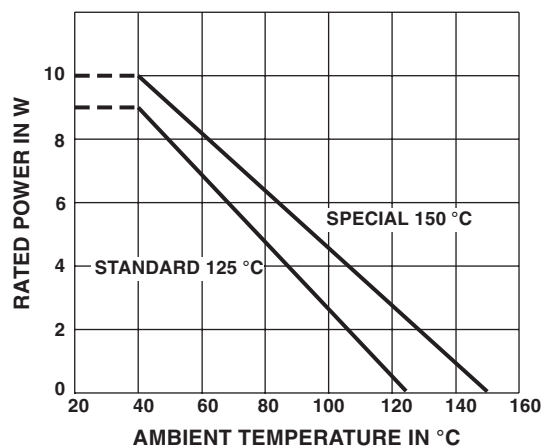
MARKING

Unit Identification	Units shall be marked with Vishay Spectrol name, model no, data code and on each section, resistance, resistance tolerance, linearity and terminal identification
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POWER RATING CHART

(Ratings for cup No. 1.

Additional cups 75 % of values shown)



RESISTANCE ELEMENT DATA

RESISTANCE VALUES (Ω)	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 70 °C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
10	0.160	0.016	775	7.74	800
20	0.120	0.024	548	10.9	800
50	0.094	0.047	347	17.3	800
100	0.106	0.106	245	24.5	20
200	0.091	0.181	173	34.7	20
500	0.072	0.361	110	54.5	20
1K	0.057	0.575	77.5	77.4	20
2K	0.056	1.12	54.8	109	20
5K	0.042	2.09	34.6	173	20
10K	0.034	3.42	24.5	245	20
20K	0.025	5.07	17.3	347	20
50K	0.019	9.41	11.0	545	20
100K	0.018	18.0	7.74	775	20
150K	0.023	34.4	6.32	949	20



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