2" (50.8 mm) Single Turn Wirewound Precision Potentiometer



FEATURES

- Screw, servo and bushing mount types available
- Large range of ohmic values: 5 Ω to 85 kΩ
- Extra taps upon request
- Gangable up to 6 sections on a same shaft
- 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	2" (50.8 mm)

ELECTRICAL SPECIFICATIONS

PARAMETER		
Total resistance: Tolerance 50 Ω and above Below 50 Ω	**STANDARD** 5 Ω to 50 kΩ ± 3 % ± 5 %	**SPECIAL** 85 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 50 Ω 50 Ω to 200 Ω 200 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ and above	**STANDARD** ± 1.0 % ± 0.50 % ± 0.25 % ± 0.25 % ± 0.25 %	**BEST PRACTICAL** ± 0.50 % ± 0.35 % ± 0.20 % ± 0.15 % ± 0.10 %
Noise	100 Ω ENR	
Electrical angle	350° ± 2°	
Power rating Section 1: 4.0 W Additional sections	70 °C ambient derated to zero at 125 °C 75 % of the rating of section 1 (3.0 W at 70 °C)	
Insulation resistance	1000 MΩ minimum 500 V_{DC}	
Dielectric strength	1000 V_{RMS}, 60 Hz	
Taps (extra)	21 available as special, standard tolerance ± 1°	
Phasing (CCW end points)	Additional sections phased to section 1 within ± 1°	

ORDERING INFORMATION

3	0	2	B	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
302	**B**: bushing **S**: servo **C**: screw	**1** **2** **3** **4**	**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	**xxxx**

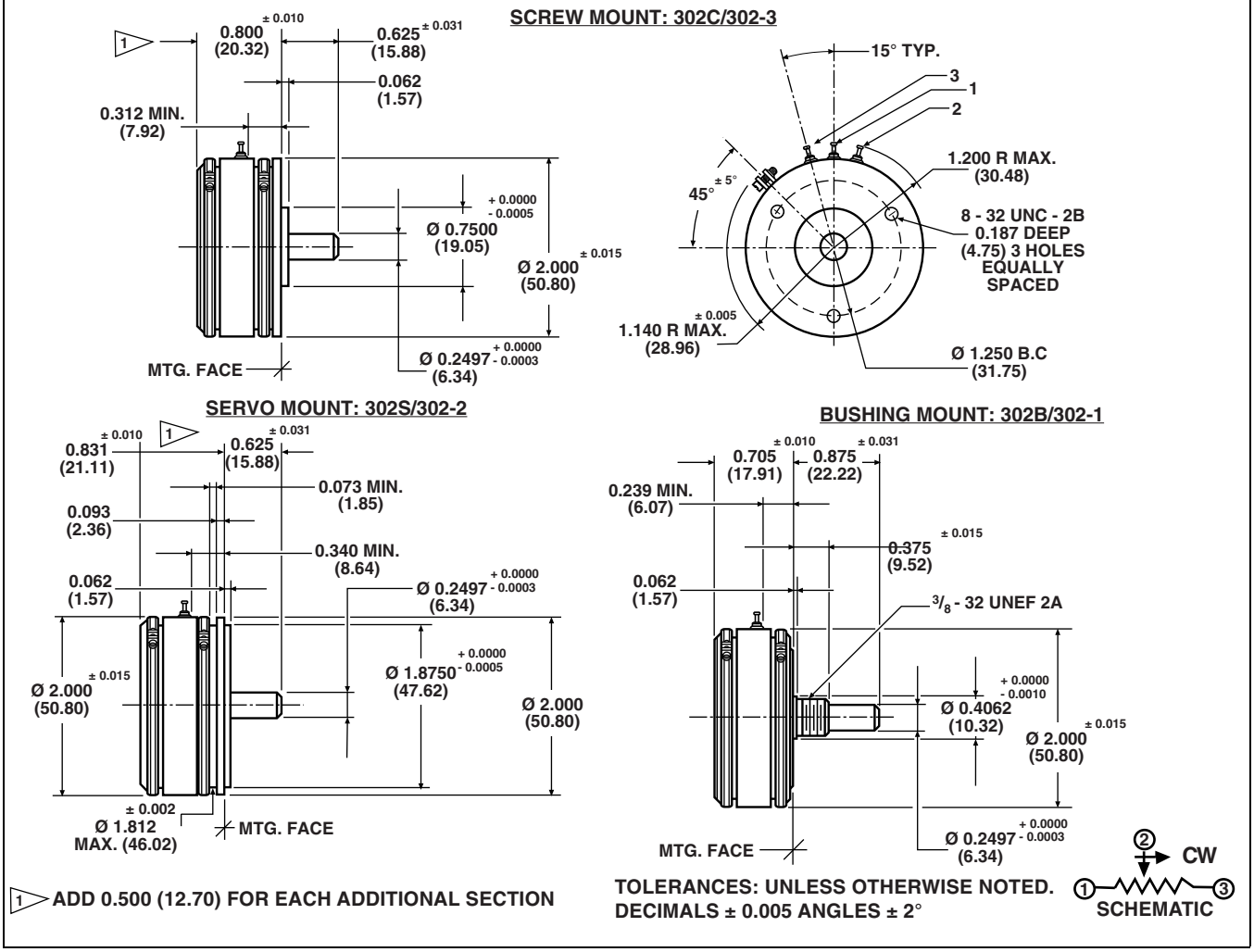
For technical questions, contact: sferprecisionpot@vishay.com

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PART NUMBER DESCRIPTION (for information only)

302-	1	1	103	203	xxxx
MODEL	STYLE	GANGS	OHMIC VALUE GANGS Nº 1	OHMIC VALUE GANGS Nº 2	SPECIAL
	B: 1 **S**: 2 **C**: 3				

DIMENSIONS in inches (millimeters)



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MECHANICAL SPECIFICATIONS

PARAMETER		
Rotation	360° (continuous)	
Bearing type	Servo and screw mount: ball Bushing mount: sleeve	
Ganging	6 sections maximum, terminal alignment, added sections, within ± 10° of section 1 terminals	
Torque (maximums) Servo and screw (1 section) Bushing (1 section) Each added section	**STARTING** 1.0 oz. - in (72.00 g - cm) 1.7 oz. - in (122.42 g - cm) 0.6 oz. - in (43.21 g - cm)	**RUNNING** 0.5 oz. - in (36.00 g - cm) 1.0 oz. - in (72.00 g - cm) 0.4 oz. - in (28.80 g - cm)
Mechanical runouts (maximums) Shaft (TIR/in) Pilot dia. (TIR) Lateral (TIR) Shaft end play Shaft radial play	**SERVO AND SCREWING** 0.002" (0.05 cm) 0.002" (0.05 cm) 0.003" (0.08 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	2.0 g - cm^2 per section maximum	
Weight (maximums) Single section: Each additional section:	4.0 oz. (113.40 g) 1.2 oz. (34.02 g)	

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 Hz
Shock	50 *g*
Salt spray	96 h
Rotational life	1 million shaft revolutions
Temperature range	-55 °C to +125 °C

Note

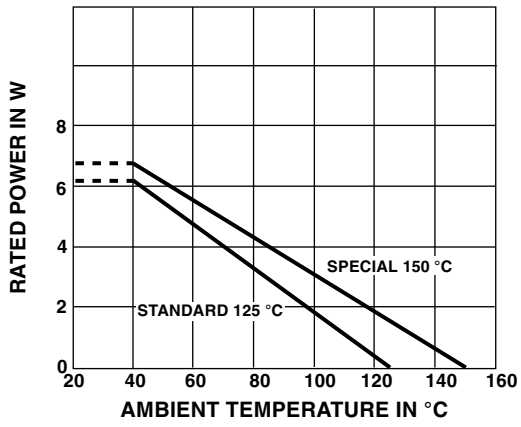
- Nothing stated herein shall be construed as a guarantee of quality or durability.

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: 302-11202

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 40 °C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
5	0.320	0.016	893	4.48	800
10	0.200	0.020	633	6.32	800
20	0.165	0.033	447	8.95	800
50	0.148	0.074	283	14.1	800
100	0.151	0.151	200	20.0	20
200	0.126	0.252	141	28.4	20
500	0.115	0.573	89.4	44.7	20
1K	0.098	0.981	63.3	63.2	20
2K	0.085	1.70	44.7	89.5	20
5K	0.059	2.93	28.3	141	20
10K	0.051	5.16	20.0	200	20
20K	0.043	8.55	14.1	284	20
50K	0.032	15.80	8.94	447	20

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