1 3/4" (44.5 mm) Single Turn Wirewound Precision Potentiometer

FEATURES

- Large range of ohmic values: 5 Ω to 65 kΩ
- Screw, servo or bushing mount types available
- Up to 6 sections on the same shaft
- Extra taps upon 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 ¾" (44.5 mm)

ELECTRICAL SPECIFICATIONS		
PARAMETER		
Total Resistance Tolerance: 50 Ω and above Below 50 Ω	**STANDARD** 5 Ω to 50 kΩ ± 3 % ± 5 %	**SPECIAL** 65 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 500 Ω 500 Ω to 2 kΩ 2 kΩ and above	**STANDARD** ± 1.00 % ± 0.50 % ± 0.25 % ± 0.25 %	**BEST PRACTICAL** ± 0.50 % ± 0.35 % ± 0.20 % ± 0.15 %
Noise	100 Ω ENR	
Electrical Angle	350° ± 2°	
Power Rating: Section 1: 3.5 W Additional Sections	70 °C ambient derated to zero at 125 °C 75 % of the rating of section 1 (2.6 W at 70 °C)	
Insulation Resistance	1000 MΩ minimum, 500 V_{DC}	
Dielectric Strength	1000 V_{RMS}, 60 Hz	
Taps (extra)	From 1 up to 19 (max.)	
Phasing (CCW end points)	Additional sections phased to section 1 within ± 1°	

ORDERING INFORMATION

2	0	2	B	2	5	0	3	2	0	3				

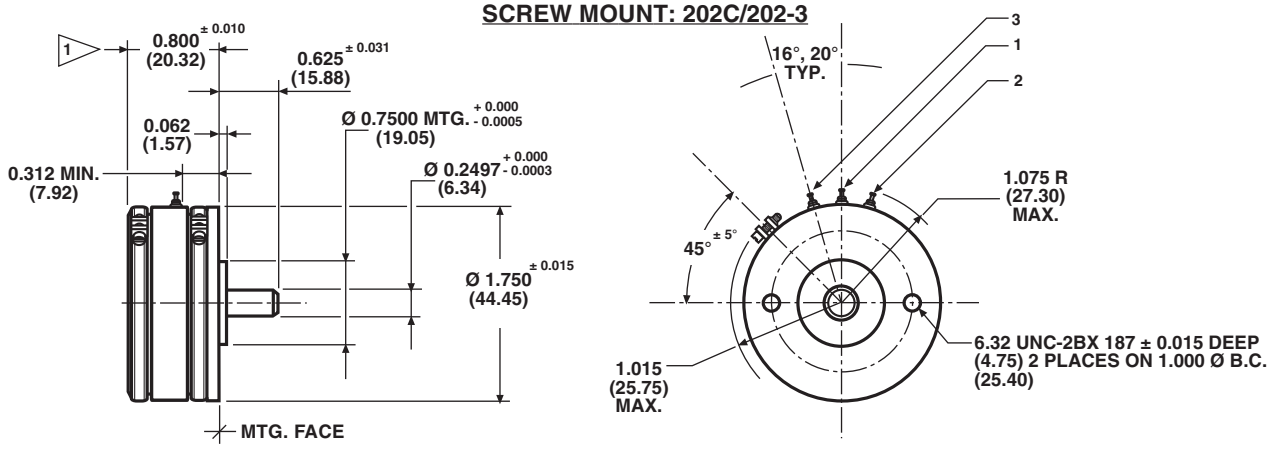
MODEL	STYLE	GANGS	OHMIC VALUE GANGS Nº 1	OHMIC VALUE GANGS Nº 2	SPECIAL REQUEST
202	**B**: bushing **S**: servo **C**: screw	**1** **2** **3**	**470** = 47 Ω **222** = 2.200 Ω **103** = 10 kΩ For ohmic value range see electrical specification	**470** = 47 Ω **222** = 2.200 Ω **103** = 10 kΩ For ohmic value range see electrical specification	**xxxx**

PART NUMBER DESCRIPTION (for information only)

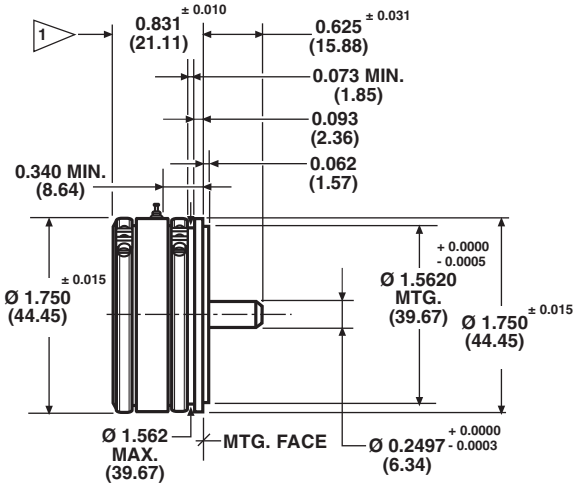
202-	1	1	503	203	xxxx
MODEL	STYLE	GANGS	OHMIC VALUE GANGS Nº 1	OHMIC VALUE GANGS Nº 2	SPECIAL
	B: 1 **S**: 2 **C**: 3				

DIMENSIONS in inches (millimeters)

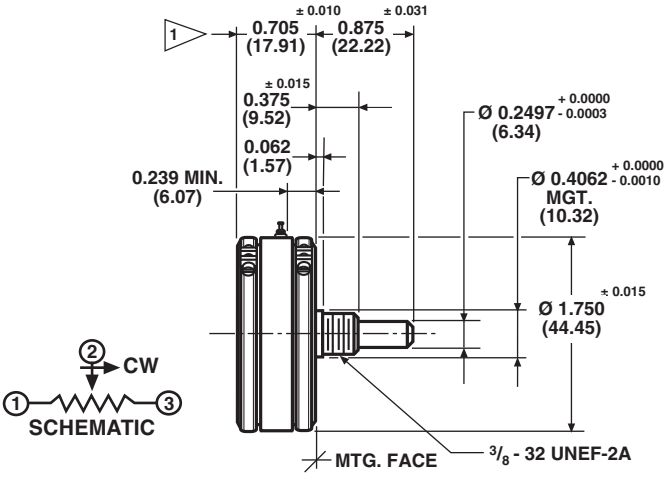
SCREW MOUNT: 202C/202-3



SERVO MOUNT: 202S/202-2



BUSHING MOUNT: 202B/202-1



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

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

MECHANICAL SPECIFICATIONS

PARAMETER		
Mechanical Rotation	360° (continuous)	
Bearing Type	Screw and servo mount: Ball bearing Bushing mount: Sleeve bearing	
Ganging	6 sections maximum, terminal alignment, added sections, within ± 10° of section 1 terminals	
Torque (maximums) 1 Section Servo and Screw Types Bushing, 1 Section Each Additional Section	**STARTING** 0.7 oz. - in (50.40 g - cm) 1.0 oz. - in (72.00 g - cm) 0.4 oz. - in (28.80 g - cm)	**RUNNING** 0.4 oz. - in (28.80 g - cm) 0.7 oz. - in (50.40 g - cm) 0.3 oz. - in (21.60 g - cm)
Mechanical Runouts (maximums): Shaft Runout (TIR/in) Pilot Dia. Runout (TIR) Lateral Runout (TIR) Shaft End Play Shaft Radial Play	**SERVO AND SCREW** 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	1.0 g - cm^2 per section maximum	
Weight (maximums): Single Section Each Additional Section	3.0 oz. (85.05 g) 1.0 oz. (28.35 g)	

MATERIAL SPECIFICATIONS

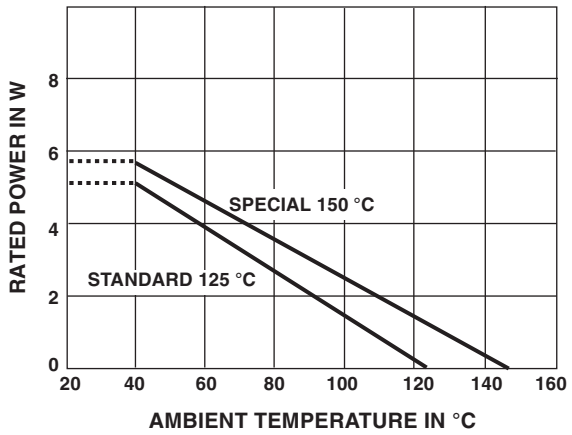
Housing and Lids	Aluminum, anodized
Shaft And Clamp Rings	Stainless steel, non-magnetic non-passivated
Terminals	Brass, plated for solderability
Bushing Mount Hardware Lockwasher Internal Tooth: Panel Nut:	 Steel, nickel plated Brass, nickel plated

MARKING

Unit Identification	Units shall be marked with Vishay Spectrol name, model number and data code on each section, resistance, resistance tolerance, linearity and terminal identification. Example of a marking for a standard part: 202-22103 102

POWER RATING CHART

(Ratings for cup No. 1.
Additional cups 75 % of values shown)



ENVIRONMENTAL SPECIFICATIONS

Vibration	15 *g* thru 2000 Hz
Shock	50 *g*
Salt Spray	96 h
Rotational Life	1 million shaft revolutions
Load Life	900 h
Operating Temperature Range	-55 °C to +125 °C

Note

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

RESISTANCE ELEMENT DATA

STANDARD RESISTANCE VALUES (Ω)	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 70 °C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	TEMP. COEF. (ppm/°C)
5	0.320	0.016	835	4.19	800
10	0.240	0.024	591	5.92	800
20	0.190	0.038	418	8.37	800
50	0.212	0.106	264	13.3	20
100	0.181	0.181	187	18.7	20
200	0.150	0.300	133	26.3	20
500	0.115	0.575	83.4	42.0	20
1K	0.103	1.03	59.1	59.2	20
2K	0.094	1.89	41.8	83.7	20
5K	0.068	3.42	26.4	133	20
10K	0.059	5.91	18.7	187	20
20K	0.048	9.52	13.2	265	20
50K	0.044	22.0	8.37	422	20

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