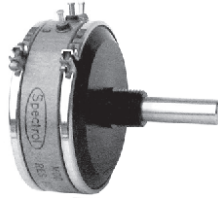


1 3/4" (44.5 mm) Single Turn Wirewound Precision Potentiometer



FEATURES

- Large range of ohmic values: 5 Ω to 65 k Ω
- 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

DESIGN SUPPORT TOOLS

[click logo to get started](#)
3D
Models
Available

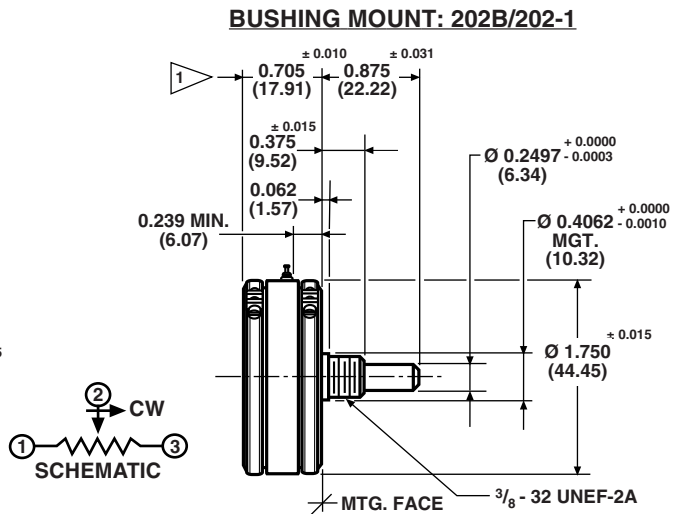
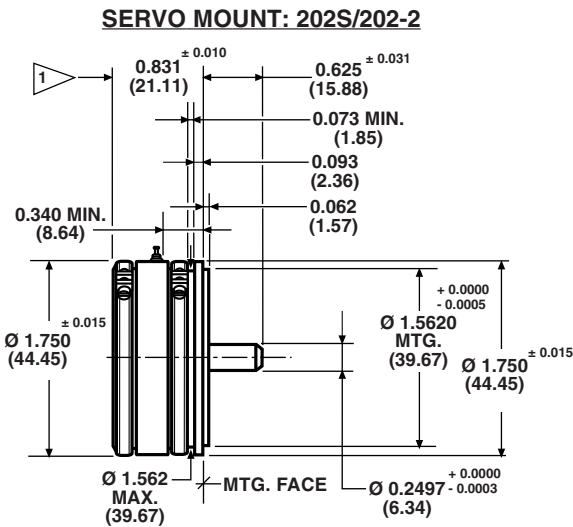
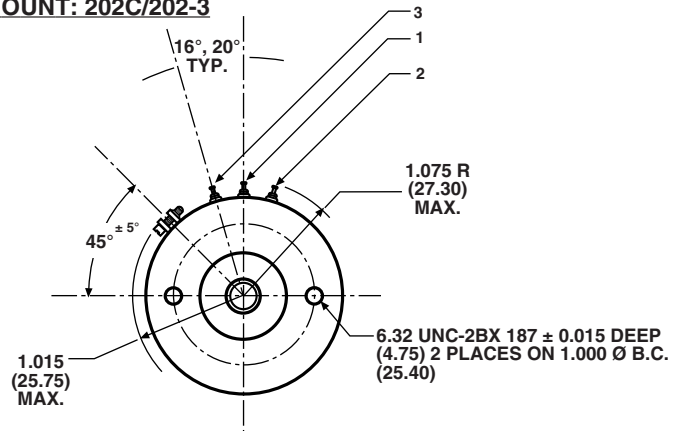
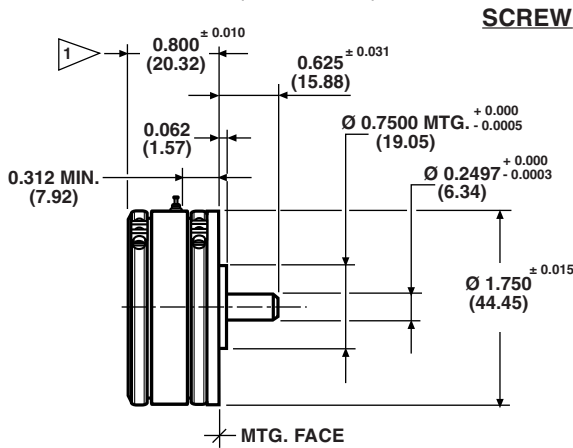
QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, single turn wirewound
Output type	Output by turrets
Market appliance	Professional
Dimensions	1 3/4" (44.5 mm)

ELECTRICAL SPECIFICATIONS		
PARAMETER	STANDARD	SPECIAL
Total Resistance Tolerance: 50 Ω and above Below 50 Ω	5 Ω to 50 k Ω $\pm 3\%$ $\pm 5\%$	65 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 applied voltage for 20 Ω and below	
Linearity (independent) 5 Ω to 50 Ω 50 Ω to 500 Ω 500 Ω to 2 k Ω 2 k Ω and above	STANDARD $\pm 1.00\%$ $\pm 0.50\%$ $\pm 0.25\%$ $\pm 0.25\%$	BEST PRACTICAL $\pm 0.50\%$ $\pm 0.35\%$ $\pm 0.20\%$ $\pm 0.15\%$
Noise	100 Ω ENR	
Electrical Angle	350° $\pm 2^\circ$	
Power Rating: Section 1: 3.5 W Additional Sections	70 $^\circ\text{C}$ ambient derated to zero at 125 $^\circ\text{C}$ 75 % of the rating of section 1 (2.6 W at 70 $^\circ\text{C}$)	
Insulation Resistance	1000 M Ω 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 $\pm 1^\circ$	

ORDERING INFORMATION														
2	0	2	B	2	5	0	3	2	0	3				
MODEL	STYLE			GANGS			OHMIC VALUE GANGS N° 1		OHMIC VALUE GANGS N° 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 N° 1	OHMIC VALUE GANGS N° 2	SPECIAL
	B: 1 S: 2 C: 3				

DIMENSIONS in inches (millimeters)



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

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

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

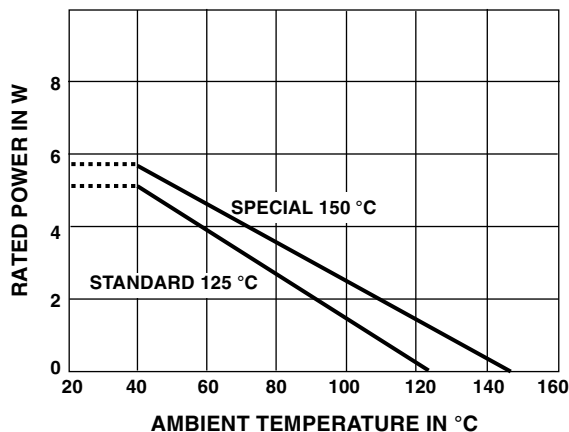
Note

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

POWER RATING CHART

(Ratings for cup No. 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)	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



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.