

1 13/16" (46 mm) Ten Turn Wirewound Upper Grade Precision Potentiometer



FEATURES

- Large range of ohmic values: 20 Ω to 200 kΩ
- Bushing mount, servo mount and screw mount versions
- Gangable up to 3 sections
- Extra taps available upon request

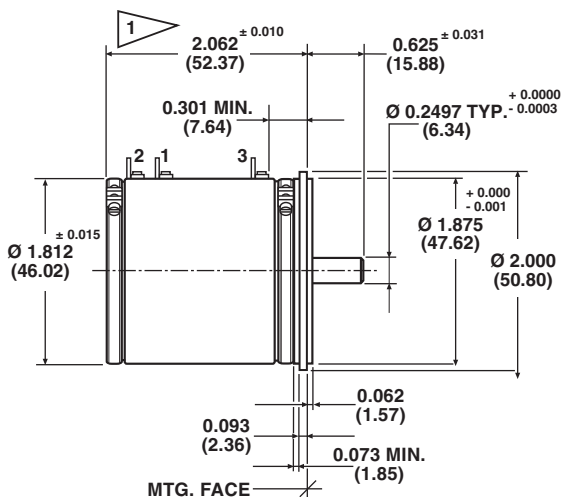
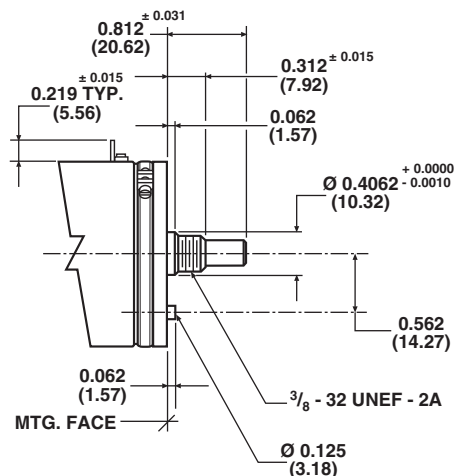
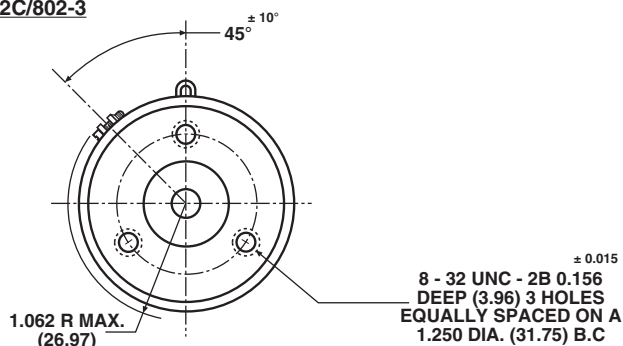
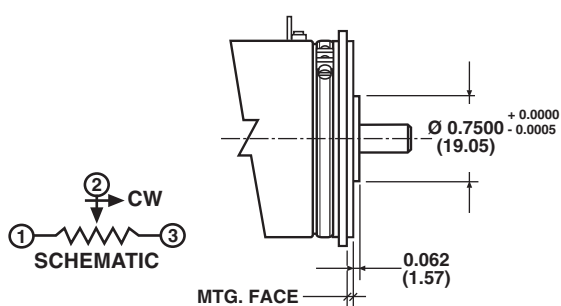
QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, multi turn wirewound
Output type	Output by turrets
Market appliance	Professional
Dimensions	1 13/16" (46 mm)

ELECTRICAL SPECIFICATIONS		
PARAMETER	STANDARD	SPECIAL
Total resistance Tolerance: 200 Ω and above Below 200 Ω	20 Ω to 200 kΩ ± 3 % ± 5 %	500 kΩ ± 1 % ± 3 %
Linearity (independent) 20 Ω to 50 Ω 50 Ω to 200 Ω 200 Ω and above	STANDARD ± 0.25 % ± 0.25 % ± 0.25 %	SPECIAL ± 0.15 % ± 0.10 % ± 0.05 %
Noise	100 Ω ENR	
Electrical rotation	3600° +4° -0°	
Power rating Section 1 Each additional sections:	5.00 Ω 70 °C ambient, derated to zero at 125 °C 75 % of the rating of section 1 (3.8 W at 70 °C)	
Insulation resistance	1000 MΩ minimum, 500 V _{DC}	
Dielectric strength	1000 V _{RMS} , 60 Hz	
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 and below	
Phasing (CCW end points)	Additional sections phased to section 1 within ± 1°	
Taps (extra)	Available as special, standard tolerance ± 1°	

ORDERING INFORMATION														
8	0	2	B	2	1	0	3	2	0	3				
MODEL	STYLE		GANGS			OHMIC VALUE GANGS N° 1		OHMIC VALUE GANGS N° 2		SPECIAL REQUEST				
802	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				

PART NUMBER DESCRIPTION (for information only)					
802-	1	1	103	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)

SERVO MOUNT: 802S/802-2

BUSHING MOUNT: 802B/802-1

SCREW MOUNT: 802C/802-3


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

1 ADD 1.770 ± 0.010 (44.96) FOR EACH ADDITIONAL SECTION

MECHANICAL SPECIFICATIONS

PARAMETER			
Rotation	3600° +10° -0°		
Bearing type	SERVO Ball bearing	BUSHING Sleeve	SCREW Ball bearing
Torque (maximums)	MAX. STARTING		MAX. RUNNING
Servo or screw section 1	1.20 oz. - in (86.4 g - cm)		0.80 oz. - in (57.6 g - cm)
Bushing section 1	1.75 oz. - in (126.0 g - cm)		1.25 oz. - in (90.0 g - cm)
Each additional section	0.80 oz. - in (57.6 g - cm)		0.60 oz. - in (43.2 g - cm)
Mechanical runouts (maximums):	SERVO OR SCROLL		BUSHING
Shaft (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)	0.003" (0.08 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)		0.003" (0.08 cm)
Weight:			
Single section	5.5 oz. (156 g)		
Each additional section	3.7 oz. (105 g)		
Stop strength	1000 oz. - in, static (72 kg - cm)		
Ganging	3 sections maximum terminal alignment, added sections within ± 10° of section 1 terminals		
Moment of inertia	15 g - cm ² per section maximum		

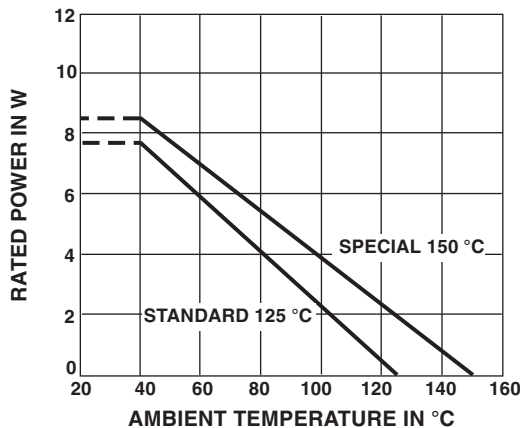


MATERIAL SPECIFICATIONS	
Housing	Glass filled thermoset plastic
Lids	Aluminum, anodized
Shaft	Stainless steel, non-magnetic, non-passivated
Terminals	Brass, plated for solderability
Clamp ring	Stainless steel
Bushing mount hardware Lockwasher: Panel nut:	Internal tooth steel, nickel plated Brass, nickel plated

MARKING	
Unit identification	Units shall be marked with Spectrol name and model no, resistance and resistance tolerance, linearity, terminal identification, and date code. Example of a marking for a standard part: 802-31502

POWER RATING CHART

(Ratings for cup N° 1. Additional cups 75 % of values shown)



ENVIRONMENTAL SPECIFICATIONS	
Vibration	15 g thru 2000 CPS
Shock	50 g
Salt spray	96 h
Rotational life	2 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)	WIRE TEMP. COEF. COEF. (ppm/°C)
20	0.044	0.009	500	10.0	800
50	0.027	0.014	316	15.8	800
100	0.024	0.024	224	22.4	800
200	0.028	0.056	158	31.6	180
500	0.023	0.115	100	50.0	20
1K	0.018	0.182	70.7	70.7	20
2K	0.020	0.402	50.0	100	20
5K	0.015	0.754	31.6	158	20
10K	0.013	1.229	22.4	224	20
20K	0.010	1.970	15.8	316	20
50K	0.007	3.686	10.0	500	20
100K	0.007	6.507	7.07	707	20
200K	0.005	6.929	5.00	1000	20
500K	0.004	19.987	2.00	1000	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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. 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.