

### 1/2" (12.7 mm) Ten Turn Wirewound Servo Mount Precision Potentiometer



#### FEATURES

- Large range of ohmic values: 100 Ω to 100 kΩ
- Smallest size available on the market
- Very easy and accurate adjustment



ELECTRICAL SPECIFICATIONS		
PARAMETER		
Total Resistance Standard Range Tolerance	<b>STANDARD</b> 100 Ω to 100 kΩ ± 5 %	<b>SPECIAL</b> 115 kΩ ± 1 %
Linearity (Independent)	<b>STANDARD</b> ± 0.30 %	<b>BEST PRACTICAL</b> ± 0.15 %
Noise	100 Ω ENR	
Rotation	3600° + 15° - 0°	
Power Rating: Section 1:	2.0 W at 40 °C ambient, derated to zero at 125 °C	
Insulation Resistance	100 MΩ minimum, 500 V <sub>DC</sub>	
Dielectric Strength	500 V <sub>RMS</sub> , 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 Ω and below	

MATERIAL SPECIFICATIONS	
Housing and Lids	Molded, glass filled, thermoset plastic
Front Lid	Aluminum, anodized
Shaft	Stainless steel, non-passivated
Terminals	Brass, plated for solderability

ENVIRONMENTAL SPECIFICATIONS	
Vibration	15 g thru 2000 Hz
Shock	50 g
Salt Spray	48 h
Rotational Life	500 000 shaft revolutions
Temperature Range	- 55 °C to + 125 °C

MARKING	
Unit Identification	Units shall be marked with Vishay Spectrol name and model no, resistance and resistance tolerance, linearity, terminal identification and date code

ORDERING INFORMATION/DESCRIPTION				
The Model 164 can be ordered from this data sheet with a variety of alternate characteristics, as shown. For most rapid service on your order, please state:				
<b>164</b> MODEL	<b>S</b> STYLE (SERVO)	<b>10K</b> TOTAL RESISTANCE	<b>B05</b> PACKAGING	<b>e4</b> LEAD FINISH
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.				

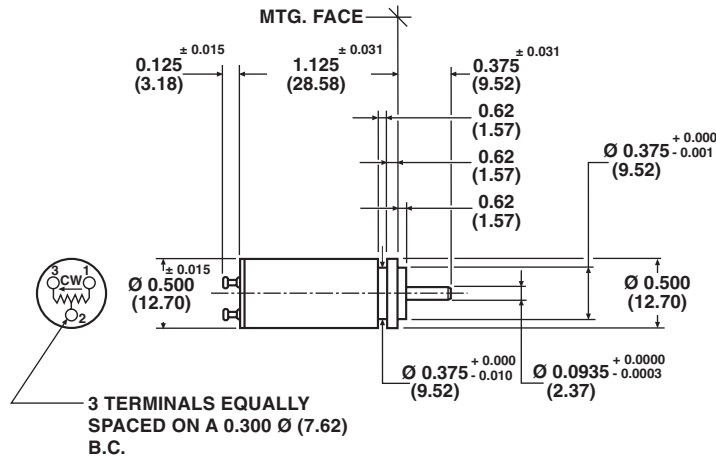
SAP PART NUMBERING GUIDELINES			
<b>164</b> MODEL	<b>S</b> STYLE	<b>103</b> OHMIC VALUE	<b>B05</b> PACKAGING



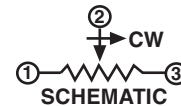
1/2" (12.7 mm) Ten Turn Wirewound  
Servo Mount Precision Potentiometer

Vishay Spectrol

**DIMENSIONS** in inches (millimeters)

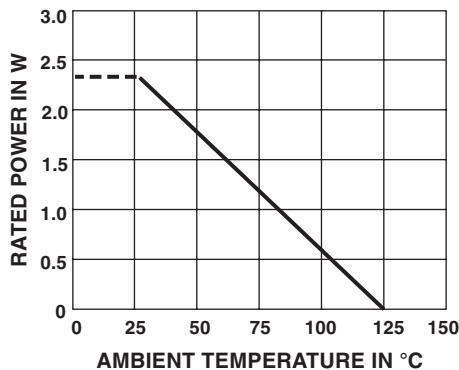


TOLERANCES: UNLESS OTHERWISE NOTED.  
DECIMALS ± 0.005 ANGLES ± 2°



MECHANICAL SPECIFICATIONS	
PARAMETER	
Mechanical Rotation	3600°, + 15° - 0°
Bearing Type	<b>Ball</b>
Torque (Maximum)	<b>STARTING</b> 0.4 oz. - in (28.80 g - cm) <b>RUNNING</b> 0.3 oz. - in (21.60 g - cm)
Mechanical Runouts (Maximums):	
Shaft (TIR)	0.002" (0.05 cm)
Pilot Dia. (TIR)	0.003" (0.08 cm)
Lateral (TIR)	0.003" (0.08 cm)
Shaft End Play	0.005" (0.13 cm)
Shaft Radial Play	0.002" (0.05 cm)
Weight	0.3 oz. (8.50 g) maximum
Stop Strength	20 oz. - in (static) (1.44 kg - cm)

**POWER RATING CHART**



RESISTANCE ELEMENT DATA					
STANDARD RESISTANCE VALUES (Ω)	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 40 °C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
100	0.092	0.092	141	14	20
200	0.069	0.138	100	20	20
500	0.049	0.245	63	32	20
1K	0.047	0.470	45	45	20
2K	0.038	0.763	32	64	20
5K	0.031	1.56	20	100	20
10K	0.025	2.55	14	140	20
20K	0.020	3.94	10	200	20
30K	0.018	5.34	8.2	246	20
50K	0.015	7.64	6.3	315	20
100K	0.013	13.2	4.5	450	20



## Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.