

# 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
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS  
COMPLIANT**
**QUICK REFERENCE DATA**

Sensor type	ROTATIONAL, multi turn wirewound
Output type	Output by turrets
Market appliance	Professional
Dimensions	1/2" (2.7 mm)

**ELECTRICAL SPECIFICATIONS**

PARAMETER		
Total Resistance	<b>STANDARD</b>	<b>SPECIAL</b>
Standard Range	100 Ω to 100 kΩ	115 kΩ
Tolerance	± 5 %	± 1 %
Linearity (independent)	<b>STANDARD</b>	<b>BEST PRACTICAL</b>
	± 0.30 %	± 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**

<b>Unit Identification</b>	Units shall be marked with Vishay Spectrol name and model no, resistance and resistance tolerance, linearity, terminal identification and date code
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**ORDERING INFORMATION/DESCRIPTION**

The Model 164 can be ordered from this datasheet with a variety of alternate characteristics, as shown. For most rapid service on your order, please state:

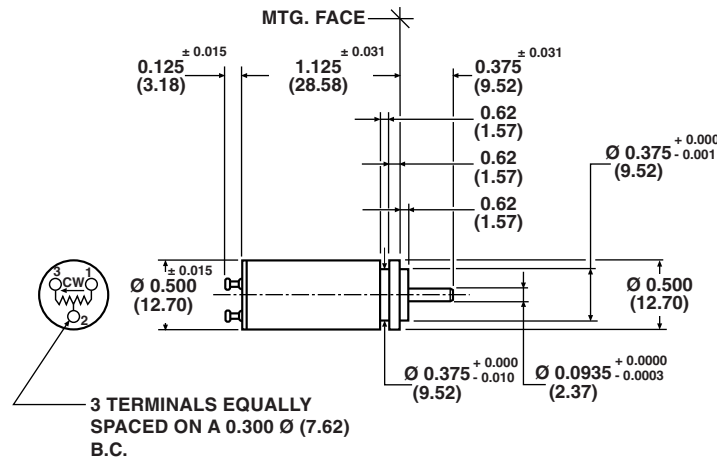
<b>164</b>	<b>S</b>	<b>10K</b>	<b>B05</b>
MODEL	STYLE (SERVO)	TOTAL RESISTANCE	PACKAGING

Other characteristics will be standard as described on this datasheet. 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.

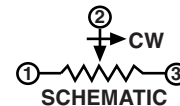
**SAP PART NUMBERING GUIDELINES**

<b>164</b>	<b>S</b>	<b>103</b>	<b>B05</b>
MODEL	STYLE	OHMIC VALUE	PACKAGING

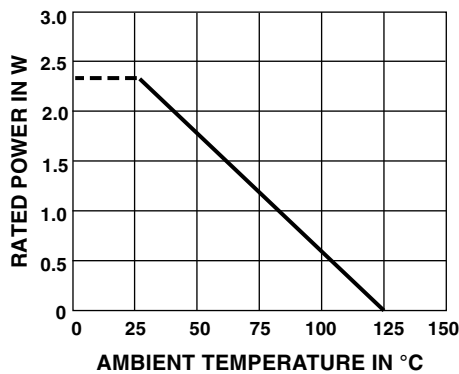
**DIMENSIONS** in inches (millimeters)

**MODEL 164S/164-2...**


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

**MARKING**

Example of a marking for a standard part: 164-21502



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