

# 1/2" (12.7 mm) Single - Turn Wirewound Bushing Mount Type Precision Potentiometer


**DESIGN SUPPORT TOOLS**
[click logo to get started](#)
**3D**  
Models  
Available

**FEATURES**

- Ohmic value range: 50  $\Omega$  up to 20 k $\Omega$
- Smallest size available: 12.7 mm
- Mechanical stops on request
- High torque and sealed versions available
- 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, single turn wirewound
Output type	Output by turrets
Market appliance	Professional
Dimensions	1/2" (12.7 mm)

ELECTRICAL SPECIFICATIONS	
<b>PARAMETER</b>	
Total Resistance	50 $\Omega$ to 20 k $\Omega$
Tolerance	$\pm 5\%$
Absolute Minimum Resistance	Linearity x total resistance or 0.5 $\Omega$ , whichever is greater
Linearity (Independent)	$\pm 1.0\%$
Noise	100 $\Omega$ ENR
Power Rating	2 W at 40 °C ambient derating linearly to zero at 125 °C
Insulation Resistance	1000 M $\Omega$ min. 500 V <sub>DC</sub>
Dielectric Strength	1000 V <sub>RMS</sub> , 60 Hz
Electrical Angle	320° $\pm 5^\circ$
End Voltage	Linearity x total applied voltage for total resistance above 20 $\Omega$ ; 2.0 % of total applied voltage for 20 $\Omega$ and below

MATERIAL SPECIFICATIONS	
Shaft	Stainless steel, non magnetic non-passivated
Housing	Aluminum, anodized
Rear Lid	Molded glass filled thermoset plastic
Terminals	Brass, gold plated
Mounting Hardware	
Lockwasher Internal Tooth:	Steel, nickel plated
Panel Nut:	Brass, nickel plated

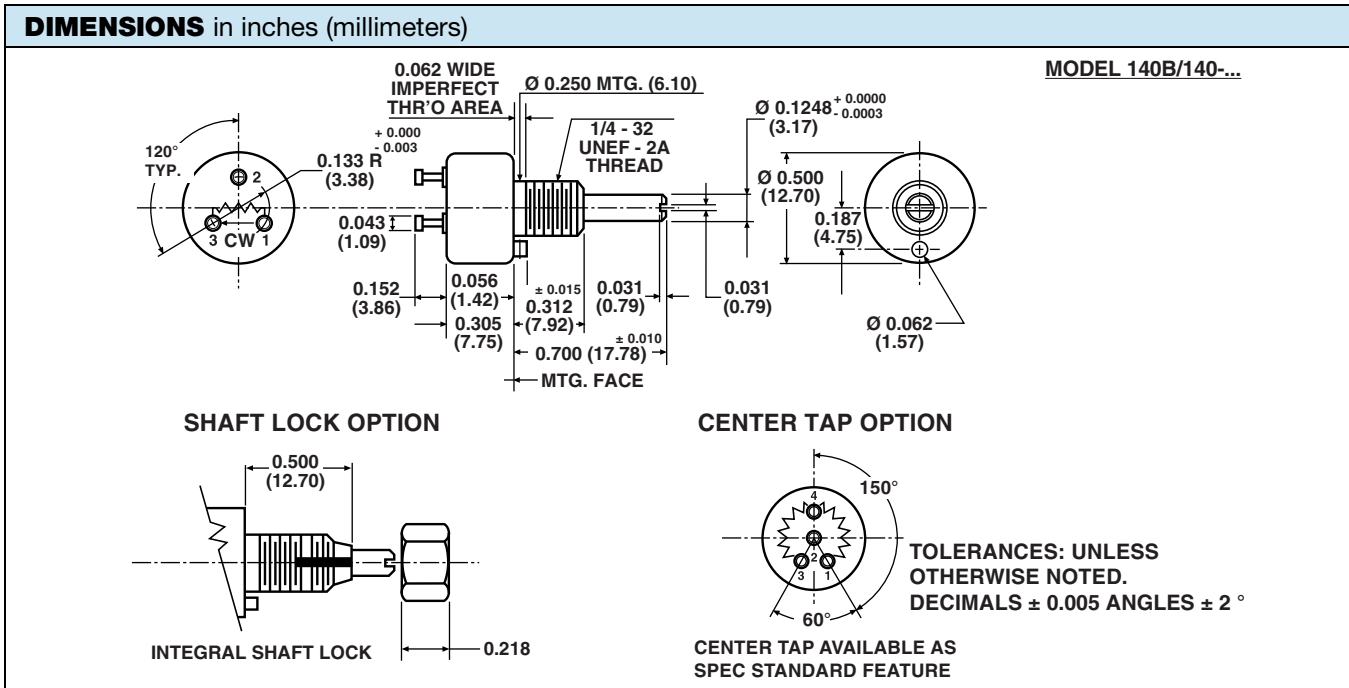
ENVIRONMENTAL SPECIFICATIONS	
Vibration	20 g thru 2000 Hz
Shock	50 g
Salt Spray	96 h
Rotational Life	500 000 shaft revolutions
Load Life	900 h
Temperature Range	-55 °C to +125 °C (operating)

**Note**

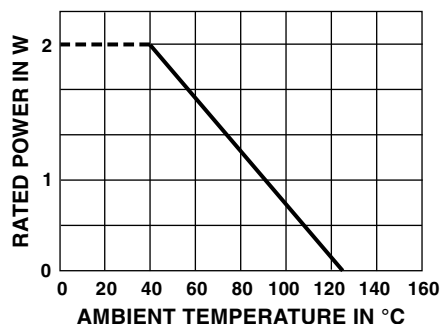
- Nothing stated herein shall be construed as a guarantee of quality or durability

ORDERING INFORMATION												
1	4	0	B	0	3	5	0	2	X	X	X	X
<b>MODEL</b>	<b>STYLE</b>	<b>MECHANICAL OPTIONS</b>		<b>FEATURES</b>			<b>VALUE</b>		<b>SPECIAL REQUEST</b>			
140	B: bushing	0: stops, slotted shaft (std) 1: plain shaft 2: shaft lock 3: continuous rotation 4: combination 1 and 2 5: combination 1 and 3 6: combination 2 and 3 7: combination 1, 2, and 3		0: standard torque 1: center tap (10K max. Rt) 2: high torque 3: sealed construction 4: combination 1 and 2 5: combination 1 and 3 6: combination 2 and 3 7: combination 1, 2, and 3			470 = 47 $\Omega$ 222 = 2,200 $\Omega$ 103 = 10 k $\Omega$ For ohmic value range see electrical specification		Custom reference			

PART NUMBER DESCRIPTION (for information only)				
140-	0-	3-	502	xxxx
MODEL	MECHANICAL OPTIONS	FEATURES	OHMIC VALUE	SPECIAL



<b>MECHANICAL SPECIFICATIONS</b>	
PARAMETER	
Rotation	330° ± 5°
Bearing Type	<b>SLEEVE BEARING</b>
Torque (maximums)	
Starting	0.2 oz. - in (14.40 g - cm)
Running	0.2 oz. - in (14.40 g - cm)
Dead Zone	Not applicable
Weight	0.1 oz. maximum (2.84 g)
Stop Strength	5 in - lbs (5.76 kg - cm) static
Runouts (maximum)	
Shaft (TIR)	0.002" (0.05 cm)
Pilot Dia. (TIR)	0.002" (0.05 cm)
Lateral (TIR)	0.003" (0.08 cm)
Shaft End Play	0.006" (0.15 cm)
Shaft Radial Play	0.003" (0.08 cm)

**POWER RATING CHART**


<b>MARKING</b>	
<b>Unit Identification</b>	Units shall be marked with manufacturer's name, model number, resistance value and tolerance, circuit diagram, terminal identification, linearity and data code. Example of a marking for a standard part: 140-1-2-103

**RESISTANCE ELEMENT DATA**

STD RESISTANCE VALUES (Ω)	RESOLUTION (%)	OHMS PER TURN	MAXIMUM CURRENT AT 40 °C AMBIENT (mA)	MAXIMUM VOLTAGE ACROSS COIL (V)	WIRE TEMP. COEF. (ppm/°C)
50	0.542	0.271	200.0	10.0	20
100	0.431	0.431	141.0	14.1	20
200	0.361	0.722	100.0	20.0	20
500	0.312	1.56	63.2	31.6	20
1K	0.255	2.55	44.7	44.7	20
2K	0.197	3.94	31.6	63.2	20
5K	0.170	8.50	20.0	100.0	20
10K	0.147	14.7	14.1	141.0	20
20K	0.105	21.0	10.0	200.0	20



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