1/2” (12.7mm) Single - Turn Wirewound Precision Potentiometer

Model 140
Bushing Mount

Model 142
Servo Mount

FEATURES

- 50Ω to 50KΩ
- Bushing or Servo

ELECTRICAL SPECIFICATIONS

PARAMETER		
Total Resistance	**STANDARD** 50Ω to 50KΩ	**SPECIAL** 70KΩ
Tolerance	± 5%	
Absolute Minimum Resistance	Linearity x Total Resistance or 0.5Ω, whichever is greater	
Linearity (Independent)	± 1.0%	
Noise	100Ω ENR	
Power Rating	2 watts at 40°C ambient derating linearly to zero at 125°C	
Insulation Resistance	1,000MΩ min. 0.500VDC	
Dielectric Strength	1.000V_{RMS}, 60 Hz	
Rotation	140 320° ± 5°	142 350° + 0° - 4°
End Voltage	Linearity x total applied voltage for total resistance above 20Ω; 2.0% of total applied voltage for 20Ω 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: Panel nut:	(Model 140 only) Steel, nickel plated. Brass, nickel plated

ENVIRONMENTAL SPECIFICATIONS

Vibration	20G thru 2000 Hz
Shock	50g
Salt Spray	96 Hours
Rotational Life	500,000 Shaft Revolutions
Load Life	900 Hours
Temperature Range	- 55°C to + 125°C (operating)

ORDERING INFORMATION

This part number consists of four groups of digits. The first group is the Spectrol model number. The second digit describes the mechanical options available. The third digit describes the other optional features which can be supplied. The fourth group is the standard EIA resistance code.
Example: **140 - 0 - 0 - 203**

140 MODEL	**0** MECHANICAL OPTIONS	**0** OTHER OPTIONAL	**203** RESISTANCE CODE FEATURES
Bushing 140	**0**. Stops, Slotted Shaft (std) **1**. Plain Shaft **2**. Shaft Lock **3**. Continuous Rotation **4**. Combination 1 & 2 **5**. Combination 1 & 3 **6**. Combination 2 & 3 **7**. Combination 1, 2, & 3	**0**. Standard Torque **1**. Center Tap (10K max. Rt) **2**. High Torque **3**. Sealed Construction **4**. Combination 1 & 2 **5**. Combination 1 & 3 **6**. Combination 2 & 3 **7**. Combination 1, 2, & 3	**2** = First Significant figure **0** = Second significant figure **3** = Number of zeros following
Servo 142	**0**. Continuous Rotation, Plain Shaft (std.)	**0**. Standard Torque **1**. Center Tap (10K max. Rt)	Same as above

Example: Part number 140-0-0-203 describes bushing mount 140 with stops, slotted shaft, standard torque and resistance of 20KΩ

Model 140, 142

Spectrol

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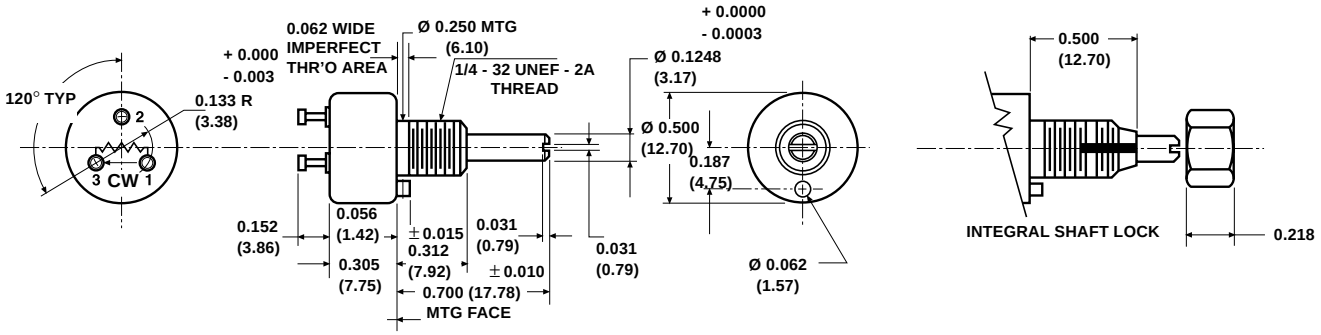
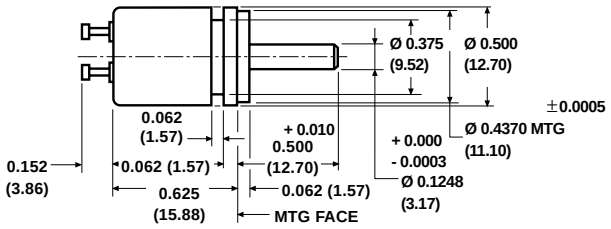
Precision Potentiometer

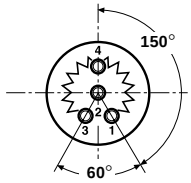
DIMENSIONS in inches (millimeters)



BUSHING MOUNT



SERVO MOUNT

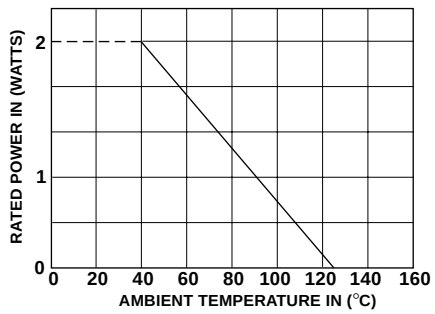


CENTER TAP AVAILABLE AS SPEC STANDARD FEATURE

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

MECHANICAL SPECIFICATIONS		
PARAMETER		
Rotation	140 330° ± 5°	142 360° continuous
Bearing Type	**SLEEVE BEARING**	**BALL BEARING**
Torque (Maximums)		
Starting	0.2 oz - in (14.40gm - cm)	0.075 oz - in (5.40gm - cm)
Running	0.2 oz - in (14.40gm - cm)	0.05 oz - in (3.60gm - cm)
Traversing	–	–
Dead Zone	Not applicable	0.20 oz - in (14.40gm - cm)
Weight	0.1 oz. maximum (2.84gm)	0.3 oz (8.50gm) maximum
Stop Strength	5 in - lbs (5.76 kgm - cm) static (140 only)	
Runouts (Maximum)	140	142
Shaft (TIR)	0.002 in (0.05cm)	0.002 in (0.05cm)
Pilot Dia (TIR)	0.002 in (0.05cm)	0.002 in (0.05cm)
Lateral (TIR)	0.003 in (0.08cm)	0.002 in (0.05cm)
Shaft End Play	0.006 in (0.15cm)	0.004 in (0.10cm)
Shaft Radial Play	0.003 in (0.08cm)	0.002 in (0.05cm)

POWER RATING CHART



MARKING	
Unit Identification	Units shall be marked with manufacturer’s name, model number, resistance value & tolerance, circuit diagram, terminal identification, linearity & date code

RESISTANCE ELEMENT DATA					
STD RESISTANCE VALUES (Ω)	**RESO-LUTION (%)**	**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
50K	0.091	45.6	6.32	316.0	20