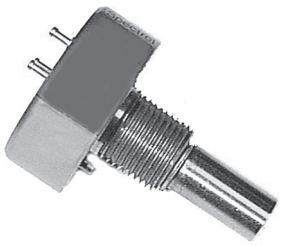
Model 152, 159

Vishay Spectrol

7/8” (19mm) Single Turn Wirewound, Cermet Precision Potentiometer



FEATURES

- Rugged, High-Quality, All Metal Housing
- Short Length Behind Panel (11/32”)
- Choice of Two Elements for Broad Resistance Range- 5Ω to 2MΩ
- No Glued Joints
- Extra Taps AVAILABLE
- High Current Capacity, Parallel-Gap-Welded Terminations (152)

ELECTRICAL SPECIFICATIONS

PARAMETER		
Total Resistance (152) Standard Range	5Ω to 20KΩ Special to 40KΩ	
Tolerance 50Ω and above: Below 50Ω	**STANDARD** ± 3% ± 5%	**SPECIAL** ± 1% ± 3%
159 Cermet Standard Range	500Ω to 2MΩ	
Tolerance	± 20%	± 5%
Linearity (Independent) (152) Total Resistance 5Ω to 100Ω 100Ω to 500Ω 500Ω and above (159) Standard	**STANDARD** ± 1.0% ± 1.0% ± 0.5% ± 0.5%	**BEST PRACTICAL** ± 0.75% ± 0.50% ± 0.35% ± 0.25%
Noise	(152) 100Ω ENR	
Output Smoothness	(159) 0.1% maximum	
Power Rating (@ 40°C Ambient)	**MODEL 152** 2 watts Derated to zero at 125°C	**MODEL 159** 3.5 watts To zero at 150°C
Rotation	340° (152) ± 2° (159) ± 4°	
Insulation Resistance	1000MΩ minimum 500 VDC	
Dielectric Strength	1000V_{RMS}, 60Hz	
Absolute Minimum Resistance	Not to exceed linearity times total resistance or 0.5Ω whichever is greater (152 only)	
Minimum Voltage	0.5% max	
Temperature Coefficient of Resistance	**MODEL 152** Refer to standard resistance element data	**MODEL 159** ± 100 ppm/°C

ORDERING INFORMATION

The Models 152 and 159 can be ordered from this data sheet with a variety of alternate characteristics, as shown. For most rapid service on your order, please state:

152 or 159	**2**	**1**	**XXX**
MODEL	MOUNTING	NUMBER OF SECTIONS	RESISTANCE EIA CODE
	1. Bushing **2**. Servo	(Single Section Only)	

Example: Model 152, Servo, 10K
Example - Model 159, Servo, 1MΩ

Example: **152, 159 - 2 - XXX**

Other characteristics will be standard as described on this data sheet. If special characteristics are required, such as: special linearity and resistance tolerance, special resistance tolerance, high torque, 1/8 shaft - 1/4 - 32 bushing, stops, non - linear functions, etc., state these on your order

For technical questions, contact sfer@vishay.com

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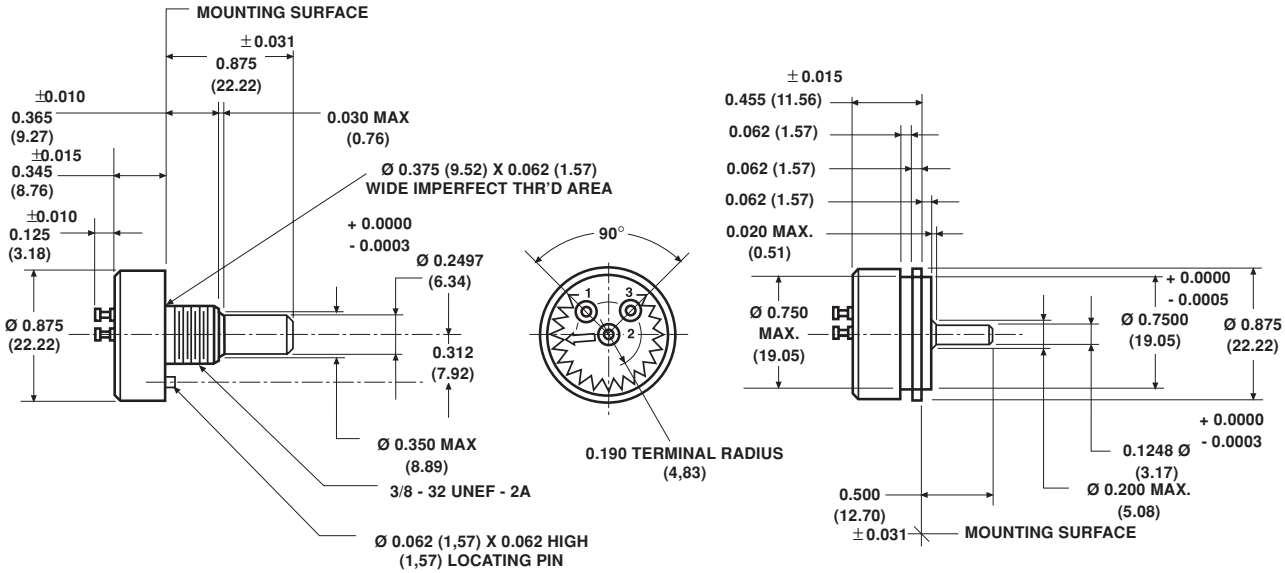
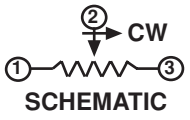
DIMENSIONS in inches (millimeters)



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



MECHANICAL SPECIFICATIONS

PARAMETER		
Rotation	360° continuous	
Bearing Type	Servo Mount: Ball Bearing Bushing Mount: Sleeve Bearing	
Torque (Maximums)	**STARTING**	**RUNNING**
Servo	0.25 oz - in (18.00gm - cm)	0.15 oz - in (10.80gm - cm)
Bushing	0.30 oz - in (21.60gm - cm)	0.25 oz - in (18.00gm - cm)
Mechanical Runouts (Maximums)	**BUSHING**	**SERVO**
Shaft Runout	0.002 in (0.05cm)	0.002 in (0.05cm)
Pilot dia. Runout	–	0.002 in (0.05cm)
Lateral Runout	0.005 in (0.13cm)	0.002 in (0.05cm)
Shaft End Play	0.006 in (0.15cm)	0.005 in (0.13cm)
Shaft Radial Play	0.003 in (0.08cm)	0.002 in (0.05cm)
Weight	0.5 oz maximum (14.18gm)	

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MATERIAL SPECIFICATIONS

Housing	Aluminum, anodized
Shaft	Stainless steel, non-magnetic non-passivated
Rear Lid	Molded glass filled phenolic
Terminals	Brass, plated for solderability
Bushing Mount Hardware Lockwasher Internal Tooth: Panel nut:	 Steel, nickel plated Brass, nickel plated

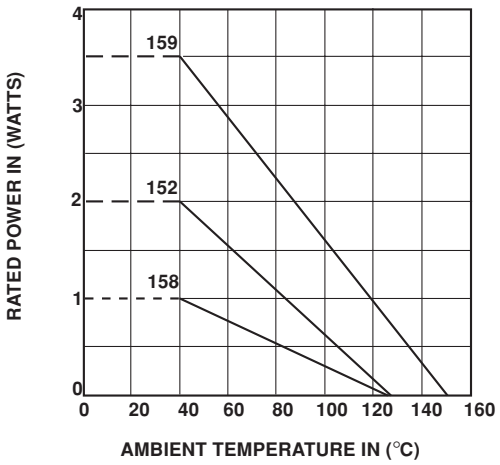
MARKING

Unit Identification	Units shall be marked with Spectrol name, model number, resistance and tolerance, linearity terminal identification and data code. Applicable test procedures: Model 152, MIL-R-12934: Model 159 MIL-R-39023

ENVIRONMENTAL SPECIFICATIONS

Vibration	15g thru 2000Hz	
Shock	50g	
Salt Spray	96 hours	
Rotational Life Shaft revolution:	**Bushing**	**Servo**
152	1 million	2 million
159	2 million	5 million
Load Life	900 Hours	
Operating Temperature Range	(152, 158) -55°C to +125°C (159) -55°C to - +150°C	

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)
5	0.681	0.034	632	3.16	180
10	0.570	0.057	447	4.47	180
20	0.447	0.089	316	6.32	180
50	0.402	0.201	200	10.0	20
100	0.309	0.309	141	14.1	20
200	0.254	0.508	100	20.0	20
500	0.214	1.07	63.2	31.6	20
1K	0.210	2.10	44.7	44.7	20
2K	0.184	3.69	31.6	63.2	20
5K	0.130	6.50	20.0	100	20
10K	0.101	10.1	14.1	141	20
20K	0.081	16.2	10.0	200	20
30K	0.075	22.7	8.12	244	20
40K	0.063	25.2	7.07	283	20

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