Precision Rotative Transducers, Conductive Plastic, Servo Mounting

A complete range of servo mounting rotational transducers for applications requiring long life accuracy and speed.

FEATURES

- Size 08 to 30
- Linearity ± 1 % down to ± 0.015 %
- Excellent repeatability
- Long life
- Essentially infinite resolution
- Up to 6 electrical functions with the same shaft
- On request custom design to meet your specifications
- Following MIL-R-39023 and NFC 93-255 requirements
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, conductive plastic
Output type	Output by turrets
Market appliance	Professional
Dimensions	Various sizes

ELECTRICAL SPECIFICATIONS

Size	08	09	11	13	15	18	20	30
Model	34 SF	78 SF	116 SF	156 SF	176 SF	134 SF	200 SF	300 SF
Functions	Linear, on request specific law							
Theoretical electrical angle (TEA)	TEA = actual electrical angle (AEA) - 2°							
Independent linearity (over TEA)	A ≤ ± 1 % or B ≤ ± 0.5 % or C ≤ ± 0.25 % or D ≤ ± 0.1 %							
On request best linearity available	D ≤ ± 0.1 %		Down to E ≤ ± 0.05 %		Down to F ≤ ± 0.025 %		Down to ≤ ± 0.015 %	
Actual electrical angle (AEA)	340° ± 3°		350° ± 2°					
Ohmic values (R_T)	1 kΩ - 2 kΩ - 5 kΩ - 10 kΩ - on request other values							
Ohmic value tolerances at 20 °C	± 10 %; on request ± 5 %							
Output smoothness	≤ 0.025 %						On request ≤ 0.01 %	
Maximum power rating at 70 °C	0.25 W	0.3 W	0.4 W	0.5 W	0.75 W	1.0 W	1.2 W	1.5 W
Wiper current/load resistance	Recommended: a few µA - 1 mA max. continuous/minimum $10^3 \times R_T$							
Tap (current or voltage) On request with angular position to be specified	U = Current			{ Position: ± 2° { Width: ≤ 4°		/T = voltage Position: ± 2°		
Repeatability	≤ 0.01 %							
End voltage	≤ 0.4 % for 470 Ω v R_T ≤ 1000 Ω/≤ 0.2 % for 1000 Ω ≤ R_T ≤ 2200 Ω/≤ 0.1 % R_T > 2200 Ω							
Insulation resistance	≥ 1000 MΩ, 500 V_{DC}							
Dielectric strength	≤ 750 V_{RMS}, 50 Hz				≤ 1000 V_{RMS}, 50 Hz			

MECHANICAL SPECIFICATIONS

Mechanical rotation	360° continuous; stops on request							
Mounting/shaft guiding	Servo/ball bearings							
Housing	Diallylphtalate; on request anodized aluminum							
Shaft material/common option	Stainless steel/screw driver slot							
Termination	Turrets; on request flexible leads, cables...							
Wiper	Precious metal multi-finger contact							
Starting torque (N.cm) 1 cup	0.2				0.25			
Starting torque (N.cm) each additional cup	0.15							
Moment of inertia (g. cm^2)	0.3	0.4	0.6	0.8	2.2	2.8	3.5	10
Weight (g) 1 cup	11 ± 2	16 ± 2	20 ± 2	29 ± 2	49 ± 2	67 ± 3	79 ± 3	120 ± 10
Weight (g) each additional cup	5 ± 2	6 ± 2	7 ± 2	10 ± 2	16 ± 2	18 ± 3	21 ± 3	62 ± 10

PERFORMANCE

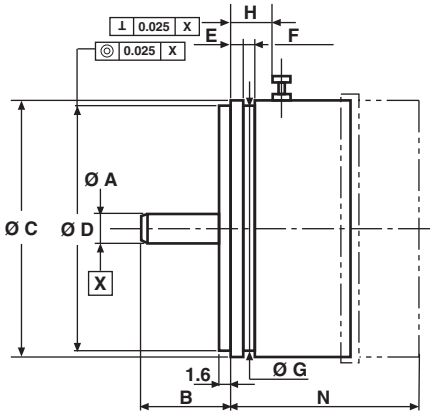
Life (million of cycles)	≥ 50
Temperature range	-55 °C to +125 °C
Climatic category	55/125/04
Maximum rotation speed (RPM)	600
Sine vibration on 3 axes	1.5 mm or 20 *g* from 10 Hz to 2000 Hz
Mechanical shocks on 3 axes	50 *g* - 11 ms - half sine

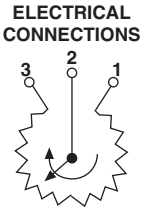
Note

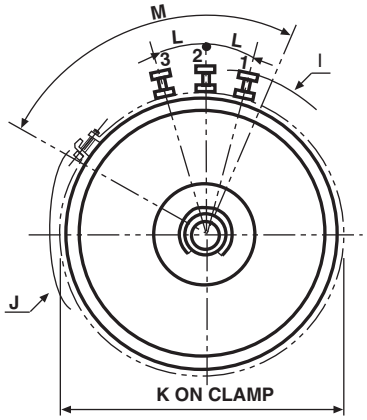
- Nothing stated herein shall be construed as a guarantee of quality or durability.

For technical questions, contact: sferprecisionpot@vishay.com

DIMENSIONS in millimeters, general tolerance ± 0.5 mm







DIMENSIONS	DESIGNATION	SIZE	POTENTIOMETER REFERENCE							
			08	09	11	13	15	18	20	30
		MODEL	34 SF	78 SF	116 SF	156 SF	176 SF	134 SF	200 SF	300 SF
A - 0 - 0.013	Ø shaft stainless steel		3.175	3.175	3.175	3.175	6.345	6.345	6.345	6.345
B max.	Shaft length		13	16.6	16.6	16.6	16.6	16.6	16.6	16.6
C max.	Ø body plastic molded		19.18	22.3	27.07	33.35	36.6	44.5	50.9	76.3
D	Ø flange		15.875	19.05	24.608	30.16	33.337	39.674	47.625	73.025
	Tolerance on flange		+0 - 13 µm						+0 - 25 µm	
E	Shoulder		1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
F min.	Width of groove		1.5	1.5	1.5	1.5	2.2	1.8	2.2	1.75
Ø G max.	Diameter of groove		17.57	19.8	24.8	30.9	33.3	41.4	47.6	73.1
H min.	Turret location		5.8	5.95	6.3	6.3	7	10.15	10.2	10.2
I max.	Radius on turrets		14	15.4	17.3	20.5	23.1	26.5	29.7	43.7
J max.	Radius on screw clamp		13.5	15.4	17.3	18.9	23.1	26.5	29.7	42.6
K max.	Ø on clamp		19.6	23.8	27.7	33.6	37.4	44.5	50.8	77.5
L ± 2°	Angle between turrets		30°	30°	25°	20°	20°	25°	15°	15°
M max.	Total angle		100°	100°	100°	100°	80°	80°	80°	80°
N max.	1 cup		16	20.5	20.5	20.5	23.5	23.5	23.5	23
	2 cups		23	27	23	25.5	26.13	26	28.5	34.5
	3 cups		36	40	36	39.5	39.5	39.5	40.97	-
	4 cups		42	50	42	47	49.5	49.5	50.72	-
	5 cups		54.5	63	54	60.5	62.5	62.5	64.5	-
	6 cups		60.5	74	60.5	68.5	73.5	73.5	74.5	-

ORDERING INFORMATION/DESCRIPTION

ROT	156	S	F	1	C	T	502	e1
SERIES	MODEL	MOUNTING TYPE S: Servo	CONDUCTOR F: Plastic film	NUMBER OF CUPS From 1 up to 6	LINEARITY A: ± 1 % B: ± 0.5 % C: ± 0.25 % D: ± 0.1 % E: ± 0.05 % F: ± 0.025 %	TAP On request T: Voltage U: Current position to be specified	OHMIC VALUE First 2 digits are significant numbers 3rd digit indicates number of zeros	LEAD FINISH

Note

- Special characteristics designs on request

SAP PART NUMBERING GUIDELINES

RO 116SF	1	D	502
MODEL	GANG NUMBER From 1 up to 6	LINEARITY	OHMIC VALUE 5 kΩ

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