Precision Rotary Sensors

Duncan Electronics' Precision Rotary Sensors are classified by type of resistive technology — wirewound coil, hybrid coils and conductive plastic (thick-film) elements. Sensor type significantly influences circuit efficiency and determines performance, reliability and cost effectiveness.

Wirewound

Wirewound Potentiometric Sensors remain one of the most cost effective solutions for handling high power dissipation levels, hostile environments and elevated temperatures. The wiper contact has the best capability for drawing current.

However, wirewound type sensors display finite voltage resolution (.003 to .3%), a limited effective life (2 x 10^6 shaft resolutions), and will experience undesirable quadrature voltage characteristics in high frequency AC circuits.

Additionally, Wirewound Potentiometric Sensors are the most suitable sensors for low-load impedance circuits and as low-power rheostats. The temperature coefficient of resistance is low and contact resistance is very low.

Single-Turn

Servo Mount
1201, 1301, 1501,
1601, 1701, 1801

Bushing Mount
1202, 1302, 1502,
1602, 1702, 1802

Wirewound Single-Turn

Servo Mount - 1201, 1301, 1501, 1601, 1701, 1801

Bushing Mount - 1202, 1302, 1502, 1602, 1702, 1802

Model	1201/1202	1301/1302	1501/1502	1601/1602	1701/1702	1801/1802
Specifications						
Actual Electrical Travel	354° ±2°	354° ±2°	354° ±2°	354° ±1°	356° ±1°	358°±1°
Diameter ±.005	0.875	1.062	1.437	1.75	2	3
Shaft Diameter +0/-.0003	0.1248	0.1248	0.2497	0.2497	0.2497	0.2497
Resistance Range (ohms)	100Ω to 25K	100Ω to 30K	100Ω to 50K	100Ω to 60K	100Ω to 75K	100Ω to 100K
Extended Resistance Range	15K to 75K	25Ω to 100K	25Ω to 125K	25Ω to 150K	25Ω to 200K	25Ω to 250K
Resistance Tolerance: Standard %	±3	±3	±3	±3	±3	±3
Linearity, Independent ±%	±0.5	±0.4	±0.3	±0.25	±0.2	±0.15
Best Practical ±%	±0.2	±0.15	±0.12	±0.09	±0.08	±0.05

ALL MODELS are manufactured to meet or exceed applicable characteristics of MIL-R-12934.

Multi-Turn

Servo Mount
3204, 3504, 3704, 3207,
3507, 3201, 3501, 3701

Bushng Mount
3205, 3206, 3605, 3705, 3208,
3209, 3202, 3203, 3602, 3702

Wirewound Multi-Turn

Servo Mount - 3204, 3504, 3704, 3207, 3507, 3201, 3501, 3701

	3-Turn			5-Turn		10-Turn		
Model	**3204**	**3504**	**3704**	**3207**	**3507**	**3201**	**3501**	**3701**
Specifications								
Actual Electrical Travel	1080° +4° -0°	1080° +1° -0°	1080° +1° -0°	1800° +4° -0°	1800° +1° -0°	3600° +4° -0°	3600° +1° -0°	3600° +1° -0°
Diameter ±.005	0.875	1.437	2	0.875	1.437	0.875	1.437	2
Shaft Diameter +0/-.0003	0.1248	0.2497	0.2497	0.1248	0.2497	0.1248	0.2497	0.2497
Resistance Range (1)	50Ω to 30K	50Ω to 50K	50Ω to 100K	50Ω to 50K	50Ω to 100K	100Ω to 100K	100Ω to 200K	100Ω to 300K
Extended Resistance Range	5Ω to 75K	5Ω to 150K	5Ω to 250K	5Ω to 125K	5Ω to 250K	10Ω to 250K	10Ω to 500K	10Ω to 830K
Resistance Tolerance: Standard %	±3	±3	±3	±3	±3	±3	±3	±3
Linearity, Independent ±%	±0.5	±0.25	±0.2	±0.35	±0.2	±0.25	±0.15	±0.1
Best Practical ±%	±0.1	±0.05	±0.04	±0.07	±0.04	±0.05	±0.03	±0.02

Bushing Mount - 3205, 3206, 3605, 3705, 3208, 3209, 3202, 3203, 3602, 3702

	3-Turn			5-Turn	10-Turn		
Model	**3205/3206**	**3605**	**3705**	**3208/3209**	**3202/3203**	**3602**	**3702**
Specifications							
Actual Electrical Travel	1080° +4° -0°	1080° +4° -0°	1080° +1° -0°	1800° +4° -0°	3600° +4° -0°	3600° +4° -0°	3600° +1° -0°
Diameter ±.005	0.875	0.175	1.75	0.875	0.875	1.75	1.75
Shaft Diameter +0/-.0003	.1248/.2497	0.2497	0.2497	0.1248/.2497	0.1248/.2497	0.2497	0.2497
Resistance Range (1)	50Ω to 30K	50Ω to 100K	50Ω to 100K	50Ω to 50K	100Ω to 100K	100Ω to 300K	100Ω to 300K
Extended Resistance Range	3Ω to 75K	5Ω to 180K	5Ω to 250K	5Ω to 125K	10Ω to 250K	10Ω to 600K	10Ω to 830K
Resistance Tolerance: Standard %	±3	±3	±3	±3	±3	±3	±3
Linearity, Independent ±%	±0.5	±0.35	±0.2	±0.35	±0.25	±0.25	±0.1
Best Practical ±%	±0.1	±0.1	±0.04	±0.07	±0.05	±0.05	±0.02

ALL MODELS are manufactured to meet or exceed applicable characteristics of MIL-R-12934.