Conductive Plastic
Single-Turn

Servo Mount
1221, 1321, 1521, 1621, 1721, 1821

Bushing Mount
1222, 1322, 1522, 1622, 1722, 1822

Conductive Plastic Rotary Sensors are ideal for small-signal, high-impedance and high-accuracy circuits common to modern precision instrumentation systems.

Featuring an extremely long operating life (typcially 50 x 10^6 shaft revolutions) and infinite resolution, Conductive Plastic Rotary Sensors are excellent solutions for high duty cycle applications that require the best possible voltage setability and output smoothness — applications such as servo feedback controls.

Minimum load resistance should be at least 100 times the total potentiometric sensor resistance for optimum performance. End voltage and contact resistance are considerably higher than wirewound sensor types, and the conductive plastic element displays a negative temperature coefficient of resistance which is significantly higher than wirewound or hybrid sensors.

Duncan Electronics offers Conductive Plastic Precision Rotary Sensors as single-turn models or as unassembled resistance element and wiper sets for direct OEM device installation.

Conductive Plastic Single-Turn

Servo Mount - 1221, 1321, 1521, 1621, 1721, 1821

Bushing Mount - 1222, 13221522, 1622, 1722, 1822

Model	**1221/1222**	**1321/1322**	**1521/1522**	**1621/1622**	**1721/1722**	**1821/1822**
Specifications						
Theoretical Electrical Travel	320°	320°	340°	340°	350°	350°
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	400Ω to 25K	500Ω to 35K	700Ω to 45K	900Ω to 60K	1.2K to 75K	2K to 125K
Extended Resistance Range	400Ω to 75K	500Ω to 100K	500Ω to 125K	500Ω to 150K	600Ω to 200K	750Ω to 300K
Resistance Tolerance: Standard %	±10	±10	±10	±10	±10	±10
Linearity, Independent +%	±0.5	±0.4	±0.3	±0.25	±0.2	±0.15
Best Practical %	±0.2	±0.15	±0.1	±0.075	±0.06	±0.04

ALL MODELS are manufactured to meet or exceed applicable characteristics of MIL-R-39023.

Hybrid
Multi-Turn

Servo Mount
4204, 4504, 4704, 4207, 4507, 4201, 4501, 4701

Bushing Mount
4205, 4206, 4705, 4208, 4209, 4202, 4203, 4702

Hybrid Precision Rotary Sensors easily handle high power dissipation levels and elevated temperatures but are less suitable than wirewound sensors for low-load impedance circuits. The wiper contact has a limited capacity to draw current.

A long service life (typically over 10 x 10^6 shaft revolutions) makes the hybrid type an excellent choice for high reliability — especially for multi-turn models. With virtually infinite resolution, hybrids are also excellent for applications where output smoothness and voltage setability are of prime importance.

Compared to wirewound, end voltage and contact resistance are high, but the temperature coefficient of resistance is low. Load resistance should be at least 100 times greater than total resistance.

Hybrid Multi-Turn

Servo Mount - 4204, 4504, 4704, 4207, 4507, 4201, 4501, 4701

	3-Turn			5-Turn		10-Turn		
Model	**4204**	**4504**	**4704**	**4207**	**4507**	**4201**	**4501**	**4701**
Specifications								
Theoretical Electrical Travel	1080°	1080°	1080°	1800°	1800°	3600°	3600°	3600°
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	750Ω to 25K	1K to 30K	2K to 40K	1K to 40K	2K to 50K	2K to 80K	3K to 100K	5K to 100K
Extended Resistance Range	500Ω to 30K	500Ω to 60K	1K to 75K	750Ω to 50K	1K to 100K	1K to 100K	2K to 200K	2.5K to 250K
Resistance Tolerance: Standard %	±5	±5	±5	±5	±5	±5	±5	±5
Linearity, Independent: +%	±0.5	±0.25	±0.2	±0.35	±0.2	±0.25	±0.15	±0.1
Best Practical +%	±0.15	±0.075	±0.06	±0.1	±0.06	±0.075	±0.05	±0.03

Bushing Mount - 4205, 4206, 4705, 4208, 4209, 4202, 4203, 4702

	3-Turn			5-Turn		10-Turn		
Model	**4205**	**4206**	**4705**	**4208**	**4209**	**4202**	**4203**	**4702**
Specifications								
Theoretical Electrical Travel	1080°	1080°	1080°	1800°	1800°	3600°	3600°	3600°
Diameter ±.005	0.875	0.875	1.75	0.875	0.875	0.875	0.875	1.75
Shaft Diameter +0/-.0003	0.1248	0.2497	0.2497	0.1248	0.2497	0.1248	0.2497	0.2497
Resistance Range	750Ω to 25K	750Ω to 25K	2K to 40K	1K to 40K	1K to 40K	2K to 80K	2K to 80K	5K to 100K
Extended Resistance Range	500Ω to 30K	500Ω to 30K	1K to 75K	750Ω to 50K	750Ω to 50K	1K to 100K	1K to 100K	2.5K to 250K
Resistance Tolerance: Standard %	±5	±5	±5	±5	±5	±5	±5	±5
Linearity, Independent +%	±0.5	±0.5	±0.2	±0.35	±0.35	±0.25	±0.25	±0.1
Best Practical +%	±0.15	±0.15	±0.06	±0.1	±0.1	±0.075	±0.075	±0.03

ALL MODELS are manufactured to meet or exceed applicable characteristics of MIL-R-39023.