Brushless Rotary Actuator & Transconductance Amplifier

Technical Bulletin
 # SD 874-01

Litton's Model 874 Rotary Brushless Actuator is used to control the derotational function of the aircraft's night vision targeting system.

The samarium cobalt PMDC brushless motor with it's Hall commutation, and high stiffness planetary spur gearing, delivers high torque and continuous rotary motion at it's anti-backlash output shaft.

The actuator incorporates a 1 speed resolver with anti-backlash gearing to provide accurate output shaft position information to the external control system.

The actuator incorporates an AC tachometer for rate servo compensation.

The Actuator's torque output is controlled by Litton's external transconductance amplifier Model 871-01, which is a P. W. M. four - quadrant design controlling the 3-phase motor's torque output as a function of the analog command input.

FEATURES

- *Power: 150 VDC & ±15 VDC*
- *Analog Command Input*
- *SmCo PMDC Brushless Motor*
- *1 Speed Resolver*
- *Tachometer*
- *Very Low Backlash*
- *Robust Structural Design*
- *High Efficiency Steel Gearing*

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When it has to turn, turn to Litton.™

Litton Poly-Scientific is an innovative rotary motion and control company with related design and manufacturing capabilities for slip rings, resolvers, DC motors and higher order actuator assemblies.

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MODEL 871-01 AMPLIFIER SPECIFICATIONS @ 25°C

PARAMETER	UNITS	VALUE
VOLTAGE	VDC	± 15 & +150
PWM FREQUENCY	KHZ	5
INPUT CONTROL SIGNAL	± VDC	10
MOTOR DRIVE CURRENT	± AMPS	0 TO 8
CONTINUOUS OUTPUT POWER	WATTS	750
SMALL SIGNAL BANDWIDTH	HZ	500
WEIGHT	LBS	2.05

MODEL 874 GENERAL SPECIFICATIONS @ 25°C

PARAMETER	UNITS	VALUE
STALL TORQUE @2.2 AMPS	IN-LBS	21
MECHANICAL STIFFNESS	IN-LBS/ARC MIN	2.38
NO-LOAD SPEED	RPM	790
BACKLASH @ ± 1 IN-LB	ARC MINUTES	15
RATED OUTPUT	IN-LBS/RPM	12 / 660
PEAK OUTPUT TORQUE	IN-LBS	30
RESOLVER 1 X ERROR	± ARC MINUTES	10
RESOLVER GEAR RATIO	—	13 / 1
POWER GEARING RATIO	—	21.6 / 1
WEIGHT	LBS	1.4

ENVIRONMENTAL LIMITS

PARAMETER	UNITS	VALUE	RANGE
OPERATING TEMP	DEG C		-40 TO +85
STORAGE TEMP	DEG C		-66 TO +130
VIBRATION	G^2/HZ	0.128	15 TO 2000 HZ
ACCELERATION	G'S	10	

*** Consult Factory*

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