



## Smart Rotary Servo Actuator

- Integrated position, speed and torque control loops
- Integrated disengage clutch
- Very high reliability for autopilot flight surface actuation
- ARINC 429 communications interface
- Independent dual-lane digital control
- Redundant sensors and monitors
- Fail-passive design – no single fault results in >8.8° motions
- Permanent Magnet Synchronous Motor (PMSM)
- Accurate speed, position and torque feedback
- Patented motor shaft position sensing
- 2 stage planetary gear train



Electrical Input	
Nominal Voltage	28 VDC
Operating Range	22 - 30 VDC
No Load Servo Current	200 mA
Max Servo Current	5.5 A
Clutch Power	28 VDC, 500 mA max

Mechanical Output	
Stall Torque	25 in-lb. (unlimited duration)
Maximum Speed	440 ± 10 RPM
Back-drive Torque	<3 in-oz (Clutch Off)
Backlash	≤1.3° (8 in-oz rev. load)
Compliance	>40 in-lb/° (locked shaft)
EM Stiffness	>20.5 in-lb/°
Frequency Response	>6.4 Hz (>58.6° amplitude)

ARINC 429 and Discrete I/O	
Discrete Inputs	Clutch Enable, ID, Direction
A429 Command Options	Position, Speed, Torque
Position Reporting	±1° accuracy, 45 turn range 0.25° resolution
Speed Reporting	±0.5% of full-scale accuracy 0.25% resolution
Torque Reporting	±5% of full-scale accuracy 0.25% resolution

Environmental	
Design Standard	DO-160E
SW Design Assurance	DO-178B, Level A
HW Design Assurance	DO-254, Level A
Operating Temperature	-55° C to +70° C
Operating Altitude	55,000 ft.
Endurance	20 Million Cycles
Vibration	DO-160E, Cat S, R, H
EMI Susceptibility	Do-160E, Cat KE
EMI Emissions	DO-160E, Cat M

Other Characteristics	
Design Type	Fail-passive with output clutch
Controller Topology	Dual Controllers (2 channels)
Motor Controller	Integrated
Weight	3.6 lb.
Size	4" x 4" x 7"
Design MTBF	>40,000 hrs