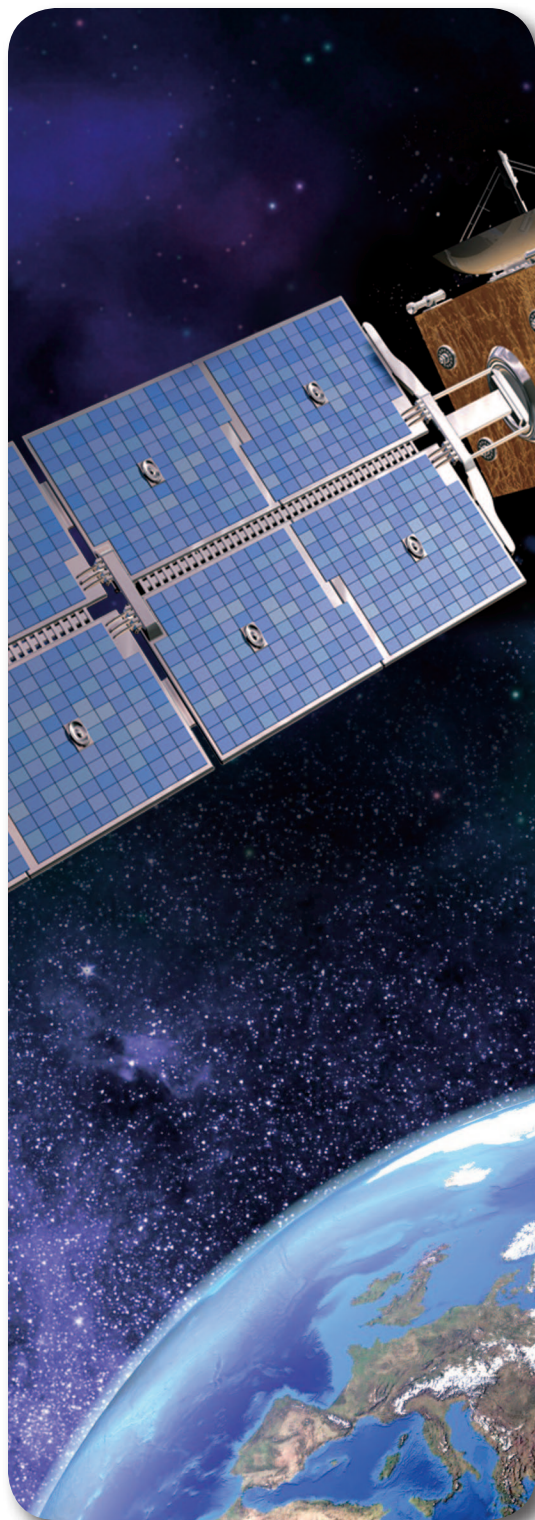




## High-Torque Reaction Wheel Assembly with Integrated Electronics



### **PRECISION PERFORMANCE AND AFFORDABLE SPACE TECHNOLOGY**



L-3 Space & Navigation (L-3 S&N) is a premier supplier of momentum exchange devices, including momentum wheels, reaction wheels, and Control Moment Gyros (CMGs). Our RWA-15s have accumulated over 2.5 million hours in space. The RWA-15 has an outstanding design heritage based on hundreds of space qualified units launched to date. At least 25 units are in orbit today, with the longest unit operating for more than 14 years. The RWA-15 has performed on various remote sensing programs with demanding high performance requirements such as: IKONOS, LEO, QuickBird, SWIFT, and QUICKSAT.

The RWA-15 is a high-torque reaction wheel assembly with integrated electronics. It provides reaction torque for pointing and attitude stabilization of satellites demanding high-reaction torque and low-induced vibration. The high-performance torque motor achieves exceptionally low-torque ripple performance over the full-speed range. Internal electronics provide motor commutation, torque control, voltage regulation, wheel telemetry and self-protection circuitry.

### **FEATURES**

- Extensive service experience on both manned and unmanned space-based platforms with more than 2.5 million hours of service time logged
- Ultra reliable, compact size and very lightweight
- Designed for long life without performance degradation
- Provides accurate reaction torque for pointing and attitude stabilization
- High torque, high performance with integrated electronics
- Exceptionally low torque ripple performance over full-speed range
- Integrated electronics provide self-protection circuitry
- Ideal for applications that demand high-reaction torque and low-induced vibration



## Specifications

### PERFORMANCE

Angular Momentum (± 2200 rpm)	20 Newton-meter (Nm)
Reaction Torque	0.68 Nm
Low Torque Ripple	< 4 milliNewton-meter (mNm)
Low Induced Vibration	< 0.4 Newtons (N)

### CHARACTERISTICS

Weight	30.9 lb., 14 kg
Dimensions	14.53 in. x 6.02 in. (dia. x ht.) 369 mm x 153 mm

Power	
Input Bus Voltage	+28 VDC, ± 6 VDC

WHEEL SPEED	REACTION TORQUE	INPUT POWER
0 rpm	0 Nm	13 W
0 rpm	0.5 Nm	57 W
2200 rpm	0 Nm	17 W
2200 rpm	0.5 Nm	230 W

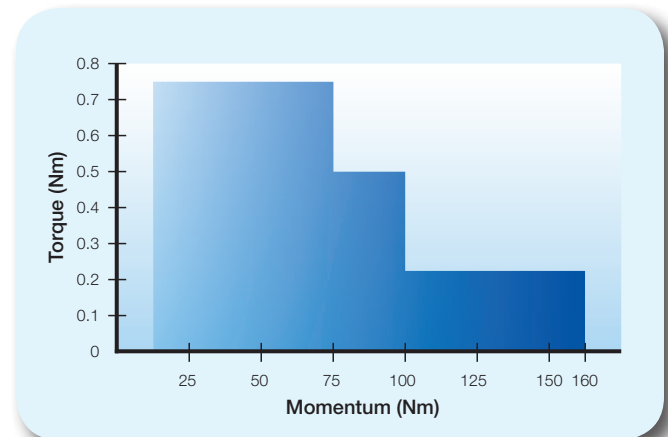
Interface	(Single I/O connector) Commands ± 5 V analog torque Digital tachometer @ 24 pulse/rev. Temperature sensor Motor current telemetry Speed direction telemetry
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Reliability	7-yr. orbit, 4-yr. storage Extensive history with R10 bearing
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Radiation	-30 krad (standard)
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IKONOS, QuickBird, SWIFT, and QUICKSAT satellites



L-3 S&N provides wheels in 5 to 160 Nm of momentum and up to 0.75 Nm of torque

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