Microsatellite Reaction Wheels (RW3-0.06)

Momentum	Nominal: 0.06 Nms Peak: 0.18 Nms (at 28 V supply)
Torque	±20 mNm at 0.12 Nms (at 28 V supply)
Control Mode	Speed, torque or current with built-in control CPU
Command / Telemetry	RS-485, CAN ±36 V fault tolerant
Mechanical	Dimensions: 77 mm x 65 mm x 38 mm Mass: 226 g
Supply Voltage	Nominal: 7.5 V to 34 V Maximum: 50 V Redundant pins, reverse polarity protected, shorted bus protected
Supply Power (in vacuum)	23.4 W @ 0.12 Nms, +10 mNm 0.9 W @ 0.12 Nms, steady state 0.5 W @ 0.06 Nms, steady state −4.6 W @ 0.10 Nms, −10 mNm regenerative braking
Environment	Thermal: −40°C to +70°C (operating) Vibration: >23 g_{RMS} Radiation: >20 krad dose
Reliability	Diamond coated hybrid ball bearings Redundant motor windings Radiation lot-screened parts on all flight models
Heritage	41 Units total on-orbit on 12 satellites, first launched June 2014 Common design to RW-0.03, with >11 year on-orbit
Price	US$35,000 each

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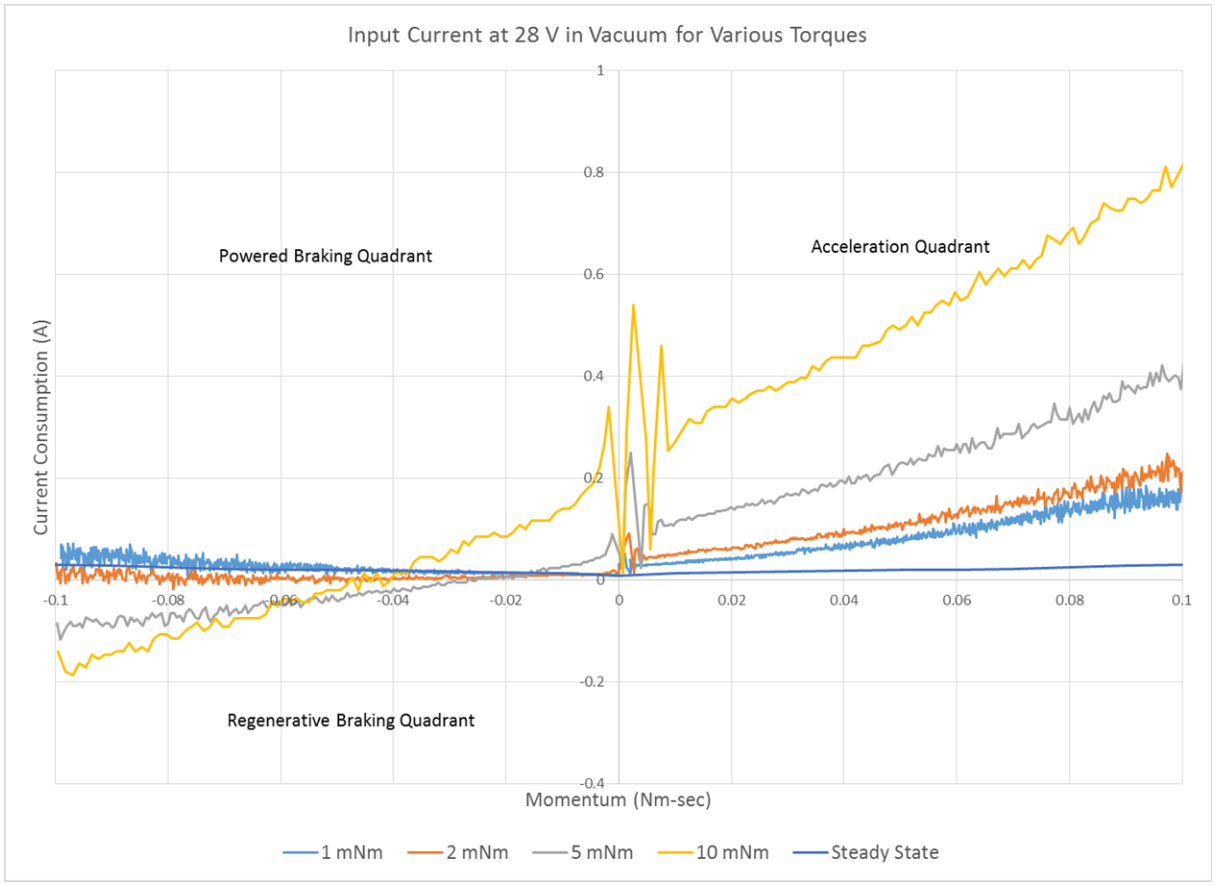
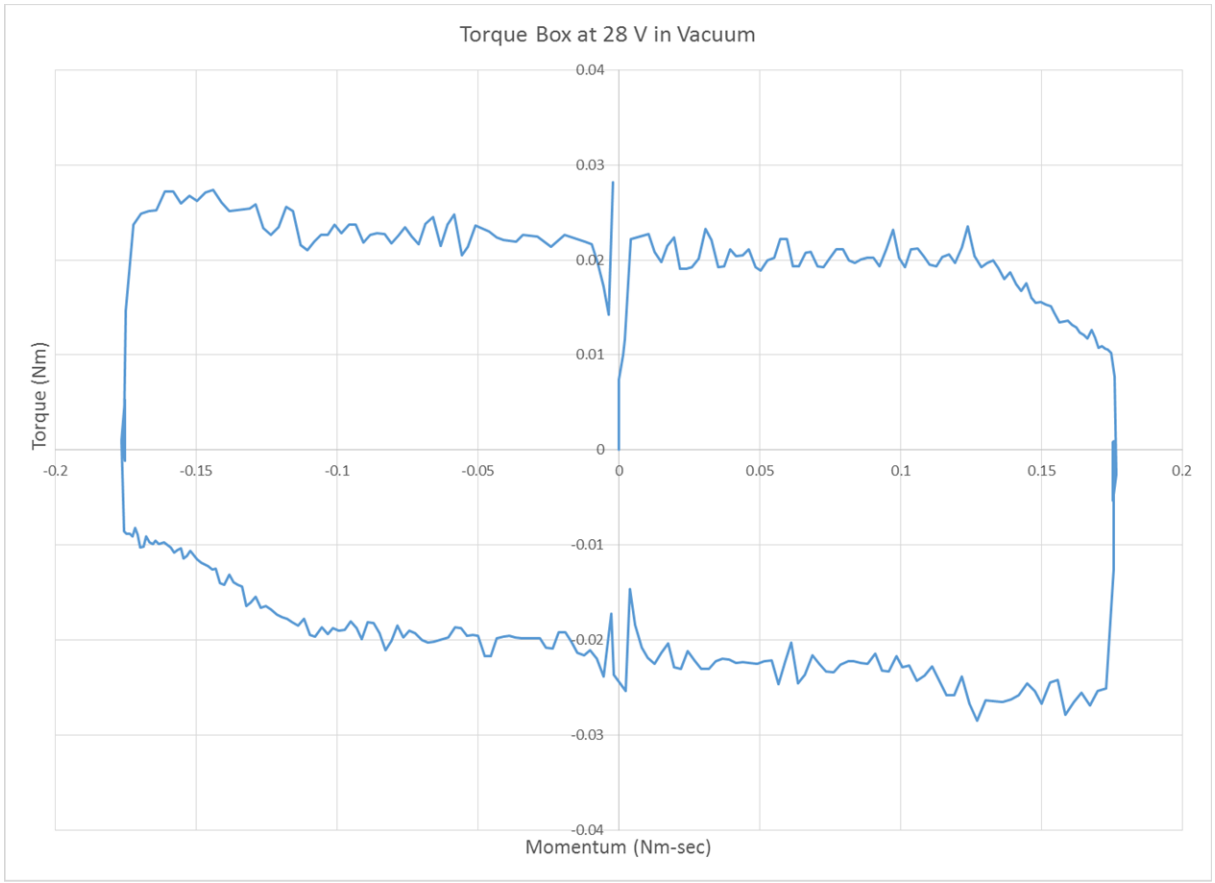
RW3-0.06


Input Current at 28 V in Vacuum for Various Torques
Current Consumption (A)
Momentum (Nm-sec)
Powered Braking Quadrant
Acceleration Quadrant
Regenerative Braking Quadrant
1 mNm
2 mNm
5 mNm
10 mNm
Steady State


Torque Box at 28 V in Vacuum
Torque (Nm)
Momentum (Nm-sec)